The Paper Trade Journal.

"The Consumption of Paper is the Measure of a People's Culture."

VOLUME XVI.—NO. 33. NEW YORK, AUGUST 13, 1887. WHOLE NUMBER 693.

Trade Topics.

Process of Recovering Alkali.

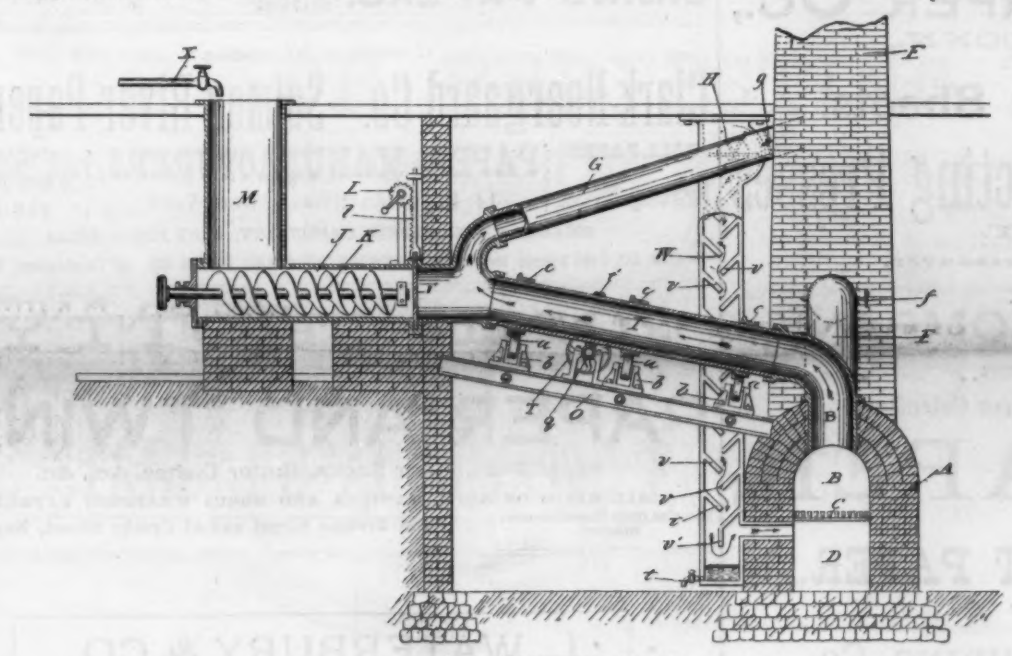
The purpose of the apparatus illustrated is to separate the soda and other by-products of the spent liquor in the manufacture of wood fibre and render it capable of being utilized, it being said to provide a new and economical mode of recovering the soda.

The vertical cylinder M opens into the horizontal cylinder J. In the horizontal cylinder J is arranged a propeller, K, journaled in the cylinder-head and operated by suitable gearing. The end of the horizontal cylinder J, opposite the end where the propeller is journaled, is closed by a valve, *l'*, which may be raised or lowered by means of the rack and pinion L and *l*.

Dry peat or other porous material is placed in the vertical cylinder, and the spent liquor is then run into this cylinder upon the peat from the pipe X. The dry, porous material absorbs the liquor and becomes saturated with it. The flow of the liquor is then stopped and the saturated peat is forced into the end of the horizontal cylinder nearest the valve *l'*, by means of the propeller, and then more peat is placed in the cylinder M and caused to absorb liquor from the pipe X. The valve *l'* is then raised to operate the propeller K, which forces the saturated peat into the revolving cylinder I. The cylinder I is caused to revolve slowly by means of a worm-gearing, *q r'*, and rests on trunnions, *a a a*.

The revolving cylinder I is open at each end and communicates with the furnace B by means of the tube or pipe B'. The hot air from the furnace B is thus made to pass through the revolving cylinder I, where it comes in contact with the saturated peat and the mass is dried. The peat, containing by-products of the liquor, drops from the revolving cylinder I into the furnace B, where combustion is maintained and the ash containing the by-products of the spent liquor is recovered in the chamber D under the grate C.

The vapor from the drying peat in the revolving cylinder I passes into the tube G, and from thence into the chimney, or it may be forced into the condensing-flue by means of the fan-blower H. The condensing-flue W is provided with a convoluted tube, into which the vapor is received and through which it passes, and around this convoluted tube is placed water, which cools the tube, and the various convolutions *v v v* allow the vapor to come into contact with the cool surface of the tube at a great many points, and thus condensation is readily obtained. The condensing-flue opens just beneath the grate C of the furnace into the ash-chamber D, where any carbon or other ingredient remaining is burned, and the draft aids the combustion in the furnace. The water generated by condensation is collected at the bottom of the flue and is drawn off by the cock *t*. This process, as well as the apparatus by which it is accomplished, is simple and inexpensive. This is patented.



Apparatus for Recovering Alkali.

Fireproof Paper or Board.

A new kind of fireproof board or paper is made with a base or body of paper or board material, and a layer or coating of asbestus or other fire-resisting material applied to the body at the time that it is manufactured, so that the manufactured article when completed comprises a base or layer of one fire-resisting material surface covered with a layer or coating of another material of a greater fire-resisting quality.

Ordinary paper-making machinery is employed in the manufacture. The stock for the body consists of a mixture or composition containing about 60 per cent. vegetable fibre, 20 per cent. asbestus, 10 per cent. alum or copperas, and 10 per cent. coloring matter, preferably plumbago or lamp-black or Venetian red. These ingredients are intimately mixed or incorporated together. This composition is then run through the paper-machine in the ordinary way; but instead of passing through the dryers it is rolled and immediately passed through the machine again, and upon the second passage of this base or layer a composition having greater fire-resisting qualities is fed therein by suitable devices and united thereto by the paper-making machinery, it being spread thereon and fed thereto in the same manner that it would be formed or made into a web of paper. The compound paper thus made is then passed through rolls and dried, and the paper is ready for any subsequent treatment.

The composition preferred for furnishing the higher fire-resisting property comprises asbestus mixed with sufficient glue, starch, or other similar ingredient to keep it together while it is being applied; but from its nature it is obvious that it does not possess the strength that the first-named composition, or composition for forming the base or first layer, possesses. It will therefore be seen that the first layer gives principally strength, and the second layer principally high fire or heat resisting or protecting properties, which, being intimately joined to the first layer, is held, supported and sustained thereby, so that a strong, solid, durable and cheap product is obtained. After the compound paper has thus been made it may be further subjected to other treatment to increase its fire-resisting properties—such, for instance, as coating one or both of its surfaces with silicate of soda, or by arranging the paper in two or more layers and uniting them by silicate of soda. When a board or paper of two layers is made the surfaces having the greatest fire-resisting property are made to come upon the outside. This is patented.

Extracts From a Millwright's Diary.

[WRITTEN FOR THE JOURNAL.]

By James F. Hobart.

(Continued.)

July 12.—While on the cold-water subject I want to tell about a fireman (he called himself engineer) who got the boiler full and let cold water run over into an engine instead of into a bleach. The engine in question was an Armington & Simms, 50 horse-power. It was a total wreck in two seconds after the water entered the cylinder. The front head was knocked out, the wrist-pin broken, connecting-rod doubled up, engine pulley-rim broken from the arms and the engine-bed cracked completely across. The wreck was total, complete and instantaneous.

It is usual, when water gets into this make of engine, before much speed is attained, to get off at the expense of the connecting-rod, which will double up much like the letter S. In the case in question the high velocity, 312 revolutions per minute, caused the water to make a total wreck.

July 13.—There is another indication of weakness in a rotary bleach shell which ought to be most carefully sought for. I remember but one mill wherein I have seen this device in use.

Segments are cut from a two-inch pine plank, and fastened around the middle of the bleach. While the bleach is running empty these segments (about four inches wide) are marked down to a perfect circle by means of a pencil held against a temporary rest rigged for the purpose.

The segments are next planed or chiseled down to this line and worked up very true, so much so that no want of truth can be perceived when the bleach is running.

A painter is next rigged. A light lever is pivoted in the centre and so erected that one end (which is fitted with a little pulley to reduce friction) bears on the edge of the pine segment.

It is obvious that if an index, graduated to inches and fractions thereof, be placed at the extremity of the lever and the bearing of the lever be directly underneath the bleach, then any sag of the bleach will be indicated on the graduated board by the end of the lever above described.

A sag of 2½ to 3 inches has been noted in the bleach above described, and it was discovered that one side of the bleach sagged more than any other part. Here was a sure indication of weakness in some particular part of the bleach shell.

I have no doubt but were this instrument used on every bleach that many of them would be stopped and a central bearing fitted forthwith.

July 15.—In a former extract the story was told of how a fire apparatus might fail through unskillful engineering or through some mechanic's shortcoming. Another side of the question should be well looked after, and that is the condition of the fire pump or pumps. Only a few days ago I was in a fine little paper-mill just as they were having a jolly good clean-up. The cap had been taken off of the water-pipe just under the couch rolls, and a line of hose was run from a hydrant to the other end of the pipe in the water box, the wire screen having been removed for that purpose. One man climbed down into the box and got the hose in position, so that a powerful stream could be delivered right into the pipe. The foreman started the steam fire-pump and looked out toward the hydrant to see the hose fill with water. One, two, three minutes passed, and still the water did not come. More steam was put to the pump. It worked faster and faster, but still no water.

"This pump worked all right day before yesterday," said the foreman. "I used it nearly an hour then."

It was of no use. The pump was stopped, a journey made to the machine-room for a monkey-wrench, and the water-valve chest was opened.

A partial vacuum had been formed in the suction-pipe, and the two lower valves were of course pretty tight upon their seats.

"I thought those valves had got stuck," said the foreman. "It has been so hot here that the rubber has glued itself tight to the iron."

The foreman sent a man for a pail of water and threw it over the two rubber valves. Of course the most of the water ran down into the water-cylinder, and, the drip-valves being shut, the water stayed there. After the pump had been put together again and bolted tight it started without trouble, and soon had a stream of water flowing into the machine water-pipe.

The good foreman was mistaken in one thing, and I must strongly criticise several of his methods in regard to that fire-pump. Sticking of the valves was not the cause of the trouble, for they did not stick, as the partial vacuum in the suction-pipe plainly showed.

The water-piston packing was at fault. There was grit and dirt in the water, and the piston packing had become worn so much that it did not work tight enough to exhaust the air from the suction-pipe. All water had been drawn out of the water-cylinder two days before, by opening the drip-valves; the cylinder had got very dry and it would not pump air, although it worked very well when once the water had "caught." In wetting the valves the foreman unconsciously did the one thing necessary—he put water enough in the cylinder to "prime" the pump and render air-pumping possible.

All pumps must receive close attention as regards the packing of their water-cylinders and also of the piston-rod. I have had pumps fail to "catch" water after everything had been done which I could think of, except repacking the piston-rod. Doing this enabled the pump to draft water and go to work. The piston of the pump has not received proper care and attention. I would recommend that all fire-pumps be piped direct into their cylinders from a water-tank, city service, some other pump, or from some independent source of water supply, whereby the cylinder could be instantly filled in a case like this.

There was another thing wrong with this pump or with its fittings. The foreman had to send to the machine-room, a hundred feet distant, for a wrench wherewith to take apart the pump. This was very bad; minutes are precious things when the mill is burning up, and all necessary wrenches should be kept at all time close beside the fire-pump. The first man who borrows a fire-pump wrench, hammer or oil-can should receive his discharge on the spot.

Here has been told two things which might have cost hundreds of dollars in case of fire, viz., failure of the pump, lack of tools, and to these I will add one more, the failure to start the pump every day.

Indeed, I very much prefer that a fire-pump (especially a steam-pump) be so fitted that it could be used for some light pumping duty, even if continually used for that purpose. Such duty would wear out a pump, but better wear out a dozen pumps than have one fail in case of fire.

One firm of my acquaintance uses its fire-pump for the regular duty of filling all of the tanks in its buildings; also for supplying several other tanks outside of its property. This keeps the pump in good shape, and the income derived from the outside work nearly pays for coal and the wear of pump.

The geared rotary pumps which are often connected with automatic extinguishers may have the same failing, unless they are so set that the water supply will flood them. These pumps, too, should have a 1-inch water-pipe tapped into them and the pipe also connected with a water supply.

In connecting pumps thus I always put a swing check-valve close to the pump, then a stop-valve. The check permits water to flow into the pump, but not to get out after the pump has begun to operate.

July 16.—How is a man to know that the piping is all right all over the mill, and that water can flow from every head in case of its being opened?

In case of a "wet" system it is easy enough to test, by screwing off heads in various places where water will do no damage, and it would pay to test every dry system, by letting on water once in a while and taking off heads here and there.

July 18.—The makers of automatic "sprinklers" must make some of the "heads" of some other material than alloys of zinc and copper. The brass and composition heads will rust out or corrode so quickly in bleach-rooms of paper mills that they will be about useless in three months after they are put in place. I observe that the galvanized iron pipes which connected the heads are in as good condition as when first put up. Zinc is one of the metals used in making the alloy from which the heads are made, and zinc is used for galvanizing the iron pipes, and it may be that the electrical action, when zinc is used with copper in the form of brass, is the reason of its corroding so quickly.

For the same reason it may be that iron does not rust, that is, through electrical action, for nails may be prevented from causing rust stains by boring a hole and putting therein a narrow strip of zinc, thus driving the iron in contact with the zinc. Nails driven in this way, even into green chestnut, will not show a trace of iron rust. Perhaps, as above stated, it is electrical action which prevents the rust in the cases of the nails and the galvanized pipe, and the want of such action which allows the brass to corrode when the zinc is alloyed with copper, thus virtually forming a new metal and preventing electrical action by too intimate contact of the two metals. At any rate the zinc-covered iron pipes don't rust, and heads must be made of such stock to be of any use in paper-mill bleach-rooms.

July 20.—I have seen some "awful" looking stacks of calenders, but about the worst I ever came across were in the town of L——, Mass. Not running to suit one of those "unmechanical paper-maker millwrights," he had an emery buffer rigged, whereby the rolls could be ground while they were running in the stack.

The rolls were about half decent when he began this course of treatment, but they began to get "awful" very soon, and stayed so as long as the buffer was used. At length a gentleman of English descent got hold of those calenders. He took away the buffer, gave orders to have it broken up and never used in that mill again. On Saturday night he started the calenders, running them empty, and turned a stream of water on them. The water was delivered from a hose at the top of the stack and it squirted along the whole length of the top roll, thence trickled down, keeping the whole stack completely drenched with water. The calenders were run thus until 12 o'clock Sunday night. Upon inspection they were found to be in pretty fair condition. Two or three applications of this remedy changed the "awful" stack of calenders into as nice a running set as ever was seen. Thinking this might work well on press rolls, two of them were started up under a stream of water. In two days' time they were completely spoiled. Instead of being round, they were all covered with flat places, and were bounded by many planes, instead of a single curved surface.

I find that the same rule applies here as in making surface plates; that is, three plates or three rolls must be made at once. If I take a pair of press rolls and mount one other roll

(Continued on page 481.)

WINONA PAPER CO.

HOLYOKE, MASS.,

MANUFACTURERS OF ENGINE-SIZED

Flat and Envelope Papers

AND AIR-DRIED WRITING PAPERS.

B. F. HOSFORD, Treasurer.

VALLEY PAPER CO.

— MANUFACTURERS OF —

LOFT-DRIED PAPERS

AND FINE LINEN PAPER

OF EVERY DESCRIPTION.

HOLYOKE, MASS., U. S. A.

D. S. WALTON & CO.,

General Paper Dealers,

MANUFACTURERS, IMPORTERS AND JOBBERS.

MANILLA, STRAW, BOOK, NEWS and WRAPPING of all Grades.

WEST BROADWAY & FRANKLIN STREET, NEW YORK.

BRIDGEPORT PAPER CO.,

BRIDGEPORT, CONN.,

— MANUFACTURERS OF —

News in Rolls or Sheets.

News in Rolls for Perfecting Presses

A SPECIALTY.

NELSON CURTIS, Treasurer.

ALBION PAPER COMPANY,

Holyoke, Mass.,

Manufacturer of Machine and Super-Calendered

BOOK PAPER,

— ALSO, —

ENGINE-SIZED FLAT PAPER.

EDWARD C. TAFT, Treasurer.

CROCKER MANUFACTURING CO.,

COLORED MEDIUMS,

MILL PAPERS, AMBER FLATS AND SPECIALTIES.

ALSO,

CROCKER'S AMERICAN MATRIX PAPER.

HOLYOKE, MASS. C. A. CROCKER, Treas.

AMERICAN WOOD PAPER COMPANY,

— MANUFACTURERS OF —

PURE CHEMICAL FIBRE,

Bleached, Dry in Rolls,

ALSO, ENVELOPE, WRITING AND CARD STOCK.

E. EMBREE, Agent, 140 Nassau Street, P. O. address, Box 1909. NEW YORK.

WHITE & WELLS,

No. 156 Bank Street, Waterbury, Conn.,

STRAWBOARDS.

Agents for the Piqua Strawboard and Paper Co.'s

PULP-LINED BOARDS,

IN WHITE, COLORED AND MANILLA LININGS.

PAPER OF ALL KINDS for Manufacturers, Paper-Box Makers and Printers' use.

THEODORE PINKHAM, Strawboards,

— DEALER IN —

And Agent for ANDROSCOGGIN PULP CO.'S

WHITE BOX BOARDS,

46 Federal and 143 Congress Streets,

CORRESPONDENCE SOLICITED. BOSTON, MASS.

Ship Direct from Mills.

CORRESPONDENCE SOLICITED.

H. E. PRATT PAPER CO.

MORSE BUILDING,

Cor. Nassau and Beekman Sts.

NEW YORK

"CHADWICK COPYING BOOK."

A. G. ELLIOT & CO.,

30, 32 & 34 South Sixth Street, Philadelphia.

BEING AGENTS FOR ALL THE LEADING MANUFACTURERS, OUR STOCK IS UNEXCELLED AND FACILITIES ARE AMPLE TO EXECUTE ORDERS PROMPTLY.

General Chemical Analyses *made with accuracy and dispatch, and special attention given to Paper-Mill Work.*

GRIFFIN & LITTLE,

Paper Mill Chemists,

103 MILK ST., BOSTON.

EXPERTS in the Sulphite *Processes. New Woods and Fibres treated by any chemical process. Practical results obtained.*

M. FITZGIBBON & CO.,

63, 65, 67 CROSBY STREET, NEW YORK.

STRAWBOARDS. AIR AND STEAM DRIED, ALL QUALITIES, SIZES AND THICKNESSES, UNLINED, OR LINED WITH ANY COLOR OR QUALITY OF PAPER.

PAPER BOX MACHINERY. AGENTS FOR MARSHALL, SONS & CO.'S STANDARD MACHINES FOR EVERY KIND OF WORK. ILLUSTRATED CATALOGUES SENT ON APPLICATION.

LINING PAPERS. WE SOLICIT CORRESPONDENCE FROM BUYERS OR SELLERS.

C. COOPER CLARK, President.

Clark-Neergaard Co.—Salmon River Paper Co.

ROLL PAPER FOR Perfecting Presses

PAPER MANUFACTURERS,

14 Beekman Street, New York.

CAPACITY, 30,000 POUNDS PER DAY.

COLORED POSTER PAPERS A SPECIALTY. SEND FOR SAMPLES.

C.-N. CO. Sole Agents for the LAKE GEORGE PULP AND PAPER CO., of Ticonderoga, N. Y.

JOHN CROTTY,

MANUFACTURER AND WHOLESALE DEALER IN

PAPER AND TWINE,

Paper Bags, Flour Sacks, Butter Dishes, &c., &c.

ALL KINDS OF ROPE, MANILLA AND BOGUS WRAPPING PAPERS.

Samples from Manufacturers solicited. 428 Broome Street and 41 Crosby Street, New York.

L. WATERBURY & CO.,

SELLING AGENTS FOR THE

Self-Opening Square Paper Bag.

ALSO,

MANUFACTURERS OF

Sisal Hay Rope for Paper Mills.

Nos. 139 & 141 FRONT ST., NEW YORK.

SCOTT & WALKER PAPER COMPANY,

611 Commerce Street, Philadelphia, and Montgomery, Ala.

ALL KINDS OF PAPER, PAPER NOVELTIES, AND PAPER MAKERS' SUPPLIES.

T. SEYMOUR SCOTT, Philadelphia Dept.
JNO. H. WALKER, Montgomery "
THOS. S. SAFFORD, Stock "

Correspondence Solicited.

ADVANCES MADE ON CONSIGNMENTS.

Office THE WEST JERSEY PAPER MANUFACTURING CO.

WHITMORE MANUFACTURING CO., HOLYOKE, MASS.

— MANUFACTURERS OF —

COATED LITHOGRAPH AND CHROMO PLATE

PAPERS AND CARD BOARD.

WHITE, TINTS AND COLORS.

PASTED WEDDING BRISTOL A SPECIALTY.

ULTRAMARINE FOR PAPER MANUFACTURERS,

— MANUFACTURED BY —

HOFFMANN & KIESSIG, Proprietors of Germania Ultramarine Works,

79 MAIDEN LANE, NEW YORK.

THE OUTTERSON PAPER MFG. CO.,

— MANUFACTURERS OF —

Book, News, Colored & Manilla

AND WOOD PULP.

Daily Production of Paper, 7,000 lbs.; Wood Pulp, 4,000 lbs. Write for Samples and Prices.

BROWNVILLE, Jefferson Co., N. Y.

THOMAS BARRETT,

78 Duane Street, New York.

PAPER MAKERS' SUPPLIES.

Also Dealer in Manilla, Rope, Wrapping, Book and News. Job Lots bought for Cash.

PAPER BEEBE BROS. 132 Nassau St. NEW YORK. PULP &c

CLARENCE BEEBE. CHARLES BEEBE

NATIONAL SULPHITE

Boiler and Fibre Company,

PORTLAND, MAINE.

J. FRED WEBSTER, President.

GARRET SCHENCK, Treasurer.

(P. O. Address of Treasurer: Bangor, Me.)

DIRECTORS:

J. FRED WEBSTER, Bangor, Me.
L. A. BARNES, President Peninsular Paper Co. Ypsilanti, Mich.
J. A. KIMBERLY, President Kimberly & Clark Co., Neenah and Appleton, Wis.
EDWARD ARMS, Moore, Arms & Thompson, Bellows Falls, Vt.
GARRET SCHENCK, Manager Lincoln Pulp and Paper Co., Bangor, Me.

AMERICAN SULPHITE

PULP COMPANY,

256 Washington Street,

BOSTON, MASS.

DIRECTORS:

ALEXANDER H. RICE, President.
CHARLES C. SPRINGER, Treasurer.
LEVI L. BROWN. WILLIAM A. RUSSELL.
WILLIAM B. WOOD. GEORGE W. RUSSELL.
WILLIAM H. PARSONS.

FRANCKE

Chemical Sulphite Wood Pulp.

THE EQUAL OF RAGS AT A LOWER PRICE.

HIGHEST AWARD at the Forestry Exhibition, Edinburgh, 1884, as the "Best Paper Material made from Wood."

It is also the simplest and cheapest of all chemical processes, and is secured in the United States by Letters Patent Nos. 295,365 and 304,092. The Francke Factories (at Moindal, near Gothenburg, Sweden, now turn out daily twenty tons of this Pulp. Shipments to America by weekly steamers. Transhipment at Hull, England, or direct to New York.

Orders for this Pulp or for licenses to manufacture it in this country or Canada, please address to

J. J. FRANCKE, Agent,

No. 110 Wall St., New York.

NORWEGIAN

WOOD PULP CO., Limited,

No. 41 Broad Street,

NEW YORK,

AGENT FOR

CHR. CHRISTOPHERSEN,

Christiania, Norway,

Manufacturer of

MECHANICAL

— AND —

CHEMICAL

WOOD PULP.

Correspondence.

Boston.

[FROM OUR REGULAR CORRESPONDENT.]

EASTERN OFFICE PAPER TRADE JOURNAL,
250 Devonshire Street,
BOSTON, August 11, 1887.

The general tone of business in paper trade circles is rather quiet this week; something is doing right along, but not enough to call for any extra exertion.

The failure of the W. O. Tyler Paper Company, of Chicago, following so closely on other recent failures, causes quite a ripple of excitement in the Eastern market, and the query naturally is: Are there more to follow? If so, who next? It is hoped, however, that the next failure in the paper trade is far distant in the future, since a few more of such magnitude would only add to the unsettlement of the general trade and a loss of confidence. Some few local houses are reported to be creditors of the W. O. Tyler Paper Company, but these are not largely interested, the heaviest Eastern creditors, it is claimed, being among the Holyoke paper manufacturers. The failure of G. F. Lyon & Co. and that of W. T. Randall do not, as far as can be learned, affect any of the Boston trade.

Paper-stock importers are still enjoying the summer dullness and complaints of "nothing doing" are very general. The arrivals of paper stock for the past seven days have been larger than for some weeks past, but a great part of the receipts are jute stocks. Most of the arrivals are sold to arrive, very little, it is claimed, going into store. The present demand for paper stock, however, is of small volume, and yet there is no change in quotations. The low range of prices so long prevailing, importers claim, cannot be shaded and so the market rests. All agree as to the firm tone of the foreign markets, and as no concessions can be obtained in those markets on regular grades with very little offering, the conditions for a better trade with better prices are favorable and it seems to be only a matter of a short time when business will assume more activity. Jute stocks are still buoyant and very little of choice grades offering.

The chemical market moves along from week to week subject to little change, bleaching powders being about the only article of fluctuating interest. The quotation for bleaching powder this week is 1¾c. to arrive and for spot lots; market firm with very fair demand. Caustic soda is having a fair steady movement at 2⅜c. Soda ash is stationary at the same old figures, 1¼@1.30c. for 48 per cent.; high test, 1⅛@1.15c. Soda crystals are firm at .97½@1c. China clay is quiet at $16 per ton, Southern at $13 for car-load lots and $14 from store. Rosins are in good demand, prices firm and quoted as follows: E rosin, 1.40; F, 1.45; G, 1.50 in car-load lots, f.o.b. smaller quantities commanding from 5 to 10 cents advance.

The receipts of chemicals for the week to date include 870 casks of bleaching powders, 650 casks of caustic soda, 391 casks of soda ash, 223 casks of alkali, 400 kegs and 560 barrels of soda crystals.

Paper-stock imports for the same time comprises a total of 10,880 bales and coils, classed as follows: 4,030 bales of rags, 608 bales of paper waste, 392 bales and 671 coils manilla stock and 5,179 bales of miscellaneous goods.

Other imports include 320 bales and 351 bundles of wood pulp, 1,324 bags and 452 bales of sizing, 2 bales of felts, 85 casks of Venetian red and 904 barrels of rosin.

E. A. Rourke, of Martin Rourke & Co., paper-stock packers, Manchester, England, is in Boston to-day.

James F. Hobart, millwright, whose interesting articles, "Extracts from a Millwright's Diary," are published weekly in THE JOURNAL, was in town this week and favored the Boston office with a call.

Quite a number of the local trade are out of town, the yacht race off Marblehead being the great attraction.

Locally the weather is somewhat oppressive, and those whose business will permit seek cooler retreats. Along the coast of Maine the past month has been delightful from a weather point of view, and profitable to summer hotel keepers. A representative of the city trade who makes occasional trips to Kennebunk Beach gives some very glowing accounts of the beach weather. "For a summer resort," he remarked, "give me Kennebunk Beach, and if you want real comfort and good feed and pleasant, refined people to associate with, stop at the Grove Hill Hotel." This resort has been well patronized this summer, and among the guests of the Grove Hill Hotel were A. N. Burbank, of the Fall Mountain Paper Company, whose family also spent several weeks there. C. A. Crocker and family, of Holyoke, Mass., are also spending some weeks there. The season will last until about the middle of September.

DELESDERNIER.

Holyoke Notes.

[FROM OUR REGULAR CORRESPONDENT.]

HOLYOKE, MASS., August 11, 1887.

Business good but prices low is the general reply to the stereotyped query how is business. The mills are all running full on orders, and some of them are crowded.

The topic of greatest interest is the failure of the W. O. Tyler Paper Company. Extreme reticence on the subject is observed at the paper-mill offices, and those interested have sent representatives to Chicago to look after their interests. The Whiting Paper Company is said to be in for $45,000, while the Winona, the Dickinson, the Holyoke, the Massasoit and the Union are all more or less concerned, and the impression seems to prevail that something less than forty cents on the dollar will be realized.

On being asked as to the probable cause of the failure one business man replied, "Spread themselves out too thin." Another said, "Competition," while another thought that the business to the amount of $100,000 worth of goods the failed firm has been doing per month will go into the hands of those who will obtain better prices, and that business will be benefited to that extent.

In the death of John Delaney Holyoke loses another of its best men. John Delaney was a good, true man, thoroughly honorable and reliable in all he did or said. He was beloved and respected by all who knew him. Mr. Delaney came to Holyoke in 1849, and started as a stonemason. He has been concerned in nearly all of the stone-work that has been done. The canals, the county bridge, the city hall, all of the churches and most of the business blocks bear witness to the substantial character of his work. His latest work was building the Commercial Hotel, known as the marble building. He was born in Ireland in 1815, and died after a few hours' sickness at the Atlantic House, Watch Hill, R. I., on August 9, at 4 A. M. His funeral will take place at 10 A. M. on Friday, August 12, from the Church of the Sacred Heart at Holyoke.

The Union Paper Company has about completed the extensive repairs and improvements which it has been making to its mill at a cost of $35,000.

J. W. Mullen has got his paper-tester out in good shape; it is a handsome piece of workmanship and gives a true test of the strength of paper. It can be seen at the office of the Sterns Paper Company.

Boating is becoming popular among paper makers. Webb, Cassidy and Porter will row for a purse of $45 at South Holyoke, and much interest is felt in the Leavitt-Joyce race, which is to come off soon.

The Pearl City Paper Company mill was sold at public auction on last Monday for $3,235. The sale throws out all claims and gives the purchaser a clear title.

The paper makers will hold a grand picnic or reunion at Lane's Grove, North Wilbraham, on Saturday, August 13. A large delegation will go from this city.

The Rice, Barton & Fales Machine and Iron Company, Worcester, is furnishing a 96-inch Fourdrinier machine, having twenty-two dryers, 36 inches diameter, for the Winona Paper Company. This will be the largest machine in Holyoke, and great things are expected of it.

Kneeland is out with valuable patented improvements in his letter and note paper folder, and also in his calender feeder.

W. P. Outterson has been engaged to take charge of the Eagle Paper Company's mill at Franklin, Ohio. His many friends here wish him every success.

H.

Clay Chemically Considered.

[WRITTEN FOR THE JOURNAL.]

It has been asked what results follow the use of clay in paper manufacture when certain varieties of chemicals are used in bleaching. I presume that the use of alkali, &c., is meant, but the letter fails to state. Regarding alkali, I am now making some experiments with this substance which will be ready for publication soon, when this question will be thoroughly discussed; at present I am only prepared to state that with our present alkalies, containing as they do much chloride, there is no reason why the alumina should materially affect the object of the bleach; in fact, I have noticed with wood fibre "clayed and bleached" there seems to be a tendency to strengthen the fibre, which gives it the appear-

ROLL PAPER FOR PERFECTING PRESSES.

THE GLEN MANUFACTURING CO.,
Mills at Berlin Falls N. H.
H. M. KNOWLES, Treasurer.

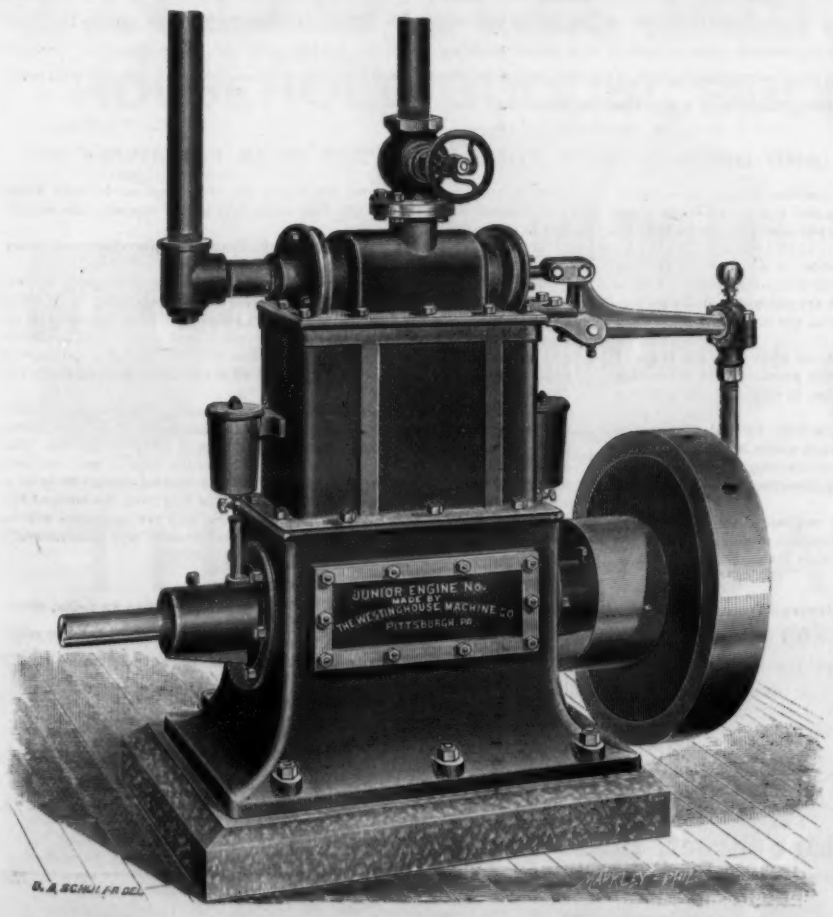
THE HAVERHILL PAPER COMPANY,
Mills at Haverhill, Mass.
I. B. HOSFORD, Treasurer.

DAILY PRODUCT: 80,000 Pounds Finished Paper; 60,000 Pounds Wood Pulp, Dry Weight.

OFFICE: 244 WASHINGTON STREET, BOSTON, MASS.

THE WESTINGHOUSE STANDARD AUTOMATIC ENGINE

has established the great practical value of the single-acting, self-lubricating principle. In pursuance of our purpose to cover the whole field of Steam Engineering with this type of Engine, we now place upon the market



THE JUNIOR AUTOMATIC ENGINE,

embodying the essential features of the "STANDARD," but designed with especial reference to COST. The bulk of the demand for a cheap Engine is under 30 H.-P., and we therefore build the "JUNIOR" in three sizes only—15, 25 and 35 H.-P.

The "JUNIOR" Engine is thoroughly well built and economical of steam. Its regulation is equal to and its running qualities better than any other except the "STANDARD." It is devoid of all finish, but is better than it looks.

IT IS THE LOWEST-PRICED ENGINE IN THE MARKET,

AND IS SOLD ON ITS MERITS.

THE WESTINGHOUSE MACHINE CO., PITTSBURCH, PA.

SALES DEPARTMENT FOR THE UNITED STATES CONDUCTED BY

WESTINGHOUSE, CHURCH, KERR & CO., 17 Cortlandt Street, New York. / Hamilton Building, Pittsburgh, Pa.
FAIRBANKS, MORSE & CO., ... Chicago, Ill.
FAIRBANKS & CO., ... St. Louis, Mo.
IRON BAY MANUFACTURING CO., ... Marquette, Mich.
PARKE & LACY, ... Sydney, Australia. / San Francisco, Cal.
UTAH AND MONTANA MACHINERY CO., ... Salt Lake, Utah.
D. A. TOMPKINS & CO., ... Charlotte, N. C.

ance of being longer. Sixty-eight degrees may be considered an exceptionally fine quality of soda ash, thus leaving the 32° as an extraneous substance, and it should be treated as such, actual analysis of it being the only means of ascertaining whether it will work well with alumina or not. There have been some few samples of this alkali furnished for analysis which show a remarkable large per cent. of the chloride of lime, and of course such soda ash used in connection with "ammonia clay" would tend to add to the value and efficacy of each.

Referring to last week's article, in cut No. 3, in which the fibre appears at the best, it will be seen that the treatment to which it was subjected has apparently thoroughly interwoven them, and they will remain in this position through all the subsequent processes of manufacture, if not acted upon by any agent which will expand the fibre proper, and when once placed in the position shown in the engraving some chemical force must be used to disarrange them. This, indeed, is the entire secret of making tough paper, and any methods which tend to augment this curling of fibre are the methods now needed in the manufacture of fine goods.

Apropos of the foregoing is another idea I was once requested to report—why paper bathed in muriatic acid will be so much stronger than before so bathing? Now, the grade of paper is anticipated, the kind is almost always a fine unsized rag paper, and by this means is made to all intents and purposes to resemble parchment; the paper, being uncovered, free from anything to impede the progress and access of the acid, is nearly instantaneously saturated with it, and the vegetable fibre not only contracts but does so in such an uneven manner that each fibre assumes the corkscrew form, when of course they become as it were clinched. To complete the process the paper is treated to an alkali bath—generally ammonia—which neutralizes the acid, and subsequent washing in water removes the alkali, leaving the paper neutral as at first.

If the paper had been "clayed" with anything like a pure alumina the fibre would not be acted upon to any appreciable extent, inasmuch as the alumina would have already interwoven the fibre by both its chemical and physical action, holding in this position by vertically filling the interstices, as shown in the previous illustration, and if the fibre had been sized with gelatine, glue or paraffin the surface would be covered, thus preventing the access of the acid to any great extent, these substances being to a certain extent proof against the action of the acid.

There being only a limited amount of animal substance—wool and hair—worked up into fibre, is it unreasonable to suppose that the use of alumina and the treatment of bleaching agents in paper manufacture tend to the same results as shown in the increase of strength by means of acid and alkali, and the subsequent removal of each by washing? We have seen that the use of the alumina does as much or more in the way of intertwining, and the natural supposition would be that the use of an alkali would in reality augment these results. In any event the few trials made tend to confirm the belief that the use of either or both will make a stronger and better paper.

(To be continued.)

Observations on Sizing Paper.

By an Austrian Paper Maker.

Like all my fellow paper makers, I attributed defective sizing in paper to the resin solution, and I obtained very good results by looking after this; but these were confined to the mill where I was employed. When I went to another place I had hard water, such as I never had before, and all of my tried methods failed to remedy the evil. It then occurred to me to soften the water, which I had previously done by costly arrangements which I was not desirous of repeating. Whether I have succeeded in doing so in a simple way I cannot positively assert, but I believe that I have.

If an alum solution is poured slowly from a graduated glass by drops into water containing lime, there is a precipitate immediately; if more of the alum solution be added, the precipitate is again dissolved. With an alum solution (I use this term instead of sulphate of alumina for shortness) of a certain strength, I can calculate how many grains of alum to the litre of water must be used to have a complete precipitate, and I can compute from this for the contents of the beating-engine, and the required alum is at once added to the pulp and the coloring and sizing is done if there be time. To prevent a new dissolving of the precipitate, I first add the sizing and then the alum, and my experiments have brought me to use the same proportion almost as usually accepted. I use 100 parts of resin to 85 parts of alum.

If more than the requisite quantity of alum be added after sizing, this latter will be useless. The first addition of alum must be calculated from experiments and increased or diminished according to the kind of paper, as this must soften the supplementary water; but the just proportion can soon be ascertained. I had no more difficulty in sizing after once having made my experiments.

The results of this process are: 1. A well sized, snappy sounding paper without addition of animal sizing, and this although I use much less linen and more cotton rags. 2. The wire remains clean and therefore lasts longer. 3. There is an economy of from 40 to 60 per cent. in resin and alum, according to the kind of paper.

I have often found that too much alum after sizing does harm. The sizing remains good with as great an excess as 2 per cent., but gets considerably worse with 2½ per cent., and with 3 per cent. it is positively bad. I account for this by the fact that the first precipitate caused by the alum is dissolved again by the addition of more alum. I calculate the quantity of alum by pouring by drops from the glass until the precipitation takes place, then note this number and continue slowly until the precipitate again disappears—the true proportion lies between the two figures. The sharp reaction is characteristic of the disappearance of the precipitate 0.1 cubic centimetre additional of alum, and the whole precipitate is dissolved. There must, however, be an excess of alum present or 1-10 of a cubic centimetre would never suddenly dissolve the precipitate. In the case of thin papers, which, as is known, have more water given them from the engine to the paper-machine, 10 per cent. more alum must be previously given; with thick paper, on the contrary, under the normal quantity. In rainy weather (when the water contains more salts in solution) more alum must be taken; in long-continued dry weather less is to be used.

While I previously used 5 per cent. of resin and 9.6 per cent. of alum to get well sized writing-paper, I now use for the thinnest kinds 2¾ per cent. of resin and 4¾ per cent. of alum, and have worked with quite newly bleached pulp without washing out, and yet obtained good sizing.

After first introducing my method I found, once with blue and another time with red paper, that the whole of it was full of white spots. It was long before it occurred to me that this was the precipitate. Now when I have to do with red or blue paper, I add a litre of pyroligneous acid after the alum has circulated in the engine some thirty minutes and done its work—the quantity of the acid depending on the color used—and there are no white spots. I have never found the size bad since I adopted this system, and my wire comes off as clean from the machine as it went on. In 1886 720,000 kilogs. of paper were produced, while only 40,000 kilogs. of alum were used, as against 50,000 kilogs. in making 440,000 kilogs. in 1884. —*Papier Zeitung.*

Acetic Acid in Bleaching.

Professor Dr. Lunge, of Zurich, recommended the use of acetic acid for the liberation of bleaching chlorine, and used it with the greatest success in a Swiss paper mill. It is especially suitable for fine papers, from which the chloride of calcium can be afterward washed out. He says:

Many attempts were made to strengthen the effect of solutions of bleaching powder by the addition of agents which would liberate the chlorine. The use of hydrochloric acid, sulphuric acid or even oxalic acid for this purpose effects a precipitation of free chlorine which attacks the fibres and is very injurious to the machinery and the hands employed. Carbonic acid does not liberate any chlorine, except hypochlorous acid, but its gaseous form renders its practical use difficult, and there occurs with it, as in the ordinary use of chloride of lime without further adjuncts, a precipitation of carbonate of lime in the fibres, so that the operation must be always finished with an acid bath.

To enliven the chloride of lime I use an agent not hitherto tried, viz., acetic acid, or some other weak organic acid of a like action, such as formic acid, which has all of the advantages of the other agents without any of their objectionable properties. The price of acetic acid does not come into account, as a very small quantity suffices, and it can always be recovered. From the acetic acid and the chloride of lime there are first evolved free hypochlorous acid and acetate of lime. In the bleaching process the former gives off its oxygen and becomes hydrochloric acid, which at once becomes changed with the acetate of lime to chloride of calcium and free acetic acid. This last acts again on the chloride of lime, &c. A minimum of acetic acid is therefore sufficient to break up the bleaching powder or chloride of lime into calcium chloride and active oxygen. The following equations will represent these processes:

(1) $2CaOCl + 2C_2H_4O_2 = Ca(C_2H_3O_2)_2 + CaCl_2 + 2HOCl$

Chloride of lime. Acetic acid. Acetate of lime. Chloride of calcium. Hypochlorous acid.

(2) $2HOCL = 2HCL + O_2$

Hypochlorous acid. Hydrochloric acid. Oxygen.

(3) $Ca(C_2H_3O_2)_2 + 2HCl = CaCl_2 + 2C_2H_4O_2$

The resulting hydrochloric acid, as in the equation 2, is never present in a free state, as it acts immediately, according to equation 3, on the acetate of lime. This is very important, because the hydrochloric acid attacks the fibres if in communication with them for any length of time, while the acetic acid is perfectly harmless. As there are no insoluble lime salts present, the operation of acidulating after bleaching can be entirely dispensed with, thereby not only saving the acid and the washing of the stuff again, but also avoiding the risk of not having the acid completely washed out in thick stuff. In our case, however, the acetic acid, even in concentrated form and at a high temperature can have no injurious effects on the fibres.

The application of acetic or other weak organic acids may be made in different ways, either in adding a small quantity to the chloride of lime solution beforehand, or by passing the pulp after the ordinary treatment with chloride of lime, without washing, through water containing very little acetic acid, or by placing the pulp in water very slightly acidulated with the acetic acid and gradually adding the chloride of lime solution while keeping the pulp well circulated. If the operation is well performed there will be a considerable saving of chloride of lime, and the water currents will be less contaminated. Considerable acetic acid is required when there is some alkali in the pulp, the water hard or the solution of the chloride of lime containing a quantity of caustic or quicklime before hypochlorous acid is liberated. In such cases less acetic acid may be used by partially replacing it by hydrochloric or sulphuric acid, but only to such an extent that there shall never be free mineral acid, but always free acetic acid only. This is easily obtained in practice by having the reaction only slightly acid with litmas paper.—*Hoffmann's Handbuch der Papier Fabrikation.*

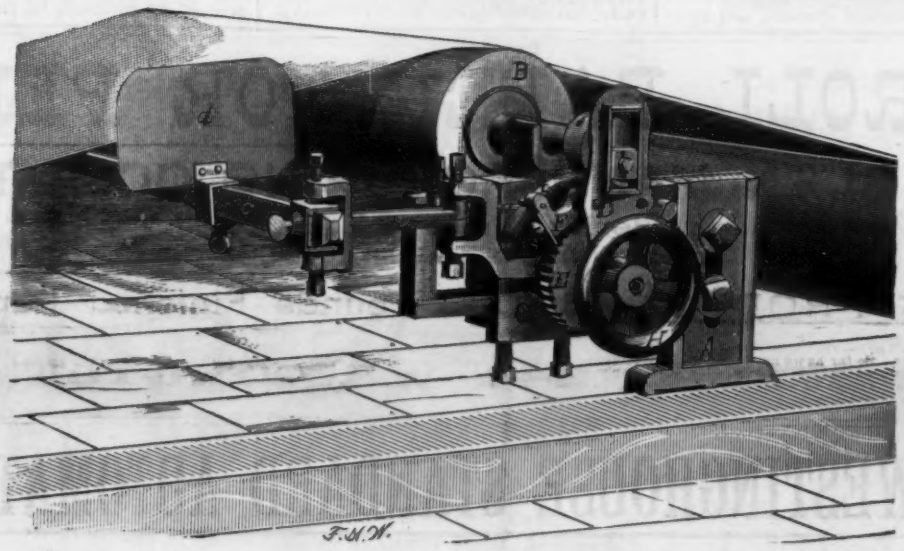
The advantage of a perfect steam regulator for paper machines needs no argument with paper-makers. Smith's "perfect" regulator, manufactured by the Fall Mountain Paper Company, 53 Devonshire street, Boston, will, it is claimed, perfectly regulate the supply of steam for properly drying the paper under any variation of steam pressure or change in the speed of the machine.

MENTZEL & SONS,
MANUFACTURERS
ROPE + PAPERS,
Elliott City, Md.
HEADQUARTERS FOR DRYER FELTING.

B. F. PERKINS, Treasurer and General Manager.
MASON-PERKINS PAPER CO.,
Manufacturers of
COLORED POSTER
Seidlitz, Shelf and Box Papers,
BRISTOL, N. H.

SMITH'S
AUTOMATIC FELT GUIDE-ROLL ATTACHMENT.

PATENTED APRIL 13, 1886.



PATENTED APRIL 13, 1886.

THIS FELT GUIDE-ROLL DEVICE, A FACSIMILE OF WHICH IS SHOWN IN THE ACCOMPANYING CUT, IS THE first perfectly Automatic Guide-Roll apparatus ever attached to a paper-making machine for the purpose. The essential feature is embodied in the fact that the felt is its own actuating agent, and this is the only way in which the apparatus can be made perfectly and entirely automatic, and thereby become practically a mechanical success.

THE CONSTRUCTION AND OPERATION OF THE APPARATUS IS AS FOLLOWS:

A represents a portion of a paper-making machine frame, to which is secured a toothed rack; *B* is the Felt Guide-Roll, and *C* is a cast-metal plate or carriage, to which the various operating parts are secured. Hence they all move in unison when the carriage is in motion.

D is a rocker-plate secured thereon, and which is actuated by the pin face-plate attached to the extremity of the Felt Guide-Roll shaft. *E* is a toothed wheel, actuated by two pawls, *F F*, which are pivoted upon the rocker-plate *D*, and said pawls are furnished with two pins, the latter resting upon a rocker-shield, *G*.

This shield, it will be seen, is moved by the lever arms *a b c*, the latter of which extends to the back of the machine, and is provided with adjustable actuating plates, *d d*. These plates rise above and in close proximity to the felt, which is to pass between them.

Now, if the felt runs to either side, or diverges from its path of travel, it will press against the plate, *d*, on that side toward which it tends, and thus actuate the lever arms to tilt the shield *G*. This lowering of the shield on one side permits the pawl resting thereon to drop likewise, and the latter will engage with the toothed wheel, *E*.

But, since the rocker-plate, *D*, is continually oscillating, the pawl will be actuated and advance the toothed wheel, which rotates a small gear or toothed wheel, meshing with the fixed rack on the machine frame and the plate or movable carriage, *C*, is moved one way or the other, and carries with it the front journal or bearing of the Felt Guide-Roll in the opposite direction to that in which the felt is moving.

H is a hand-wheel by which the Guide-Roll may be adjusted in the ordinary manner, if it is desired.

Now, it is evident that as long as the felt is moving it supplies motive-power, through the guide-roll, *B*, to actuate the rocker-plate, *D*, and the pawls, while the movement of the felt, in either direction, laterally of its proper path of travel, will tilt the rocker-shield, *G*, and allow one of the pawls to engage in the toothed wheel, *E*. In this way the movable carriage is adjusted and the guide-roll "cut" or slanted in the opposite direction to the diverging movement of the felt.

The adjustment of this machine is very easily effected, as follows: Presuming the felt is in its proper position, the guide-roll, *B*, is to be placed at right angles to the machine frame or the path of travel of the felt. The guide-plates, *d d*, are then adjusted closely up to the edge of said felt, and the levers, *a b c*, are then so arranged that the rocking-shield, *G*, is in a position to keep both the pawls, *F F*, disengaged or free from the teeth of the wheel, *E*. The felt may then be put in motion, and the operative will be assured that this Felt-Guide will hereafter continually and automatically direct the felt in its proper course.

There are many advantages to be derived from the use of this device, prominent among which is the great saving in felts, since it prevents cutting. It also prevents the felt from wrinkling on the edges, and in consequence the felt is always as good on the edge as any portion. We also furnish Wire Guides upon the same principle. Furthermore, this apparatus is very simple in its construction, and not liable to get broken or become disarranged, while, after being once adjusted, it needs no further attention.

—ADDRESS—
FALL MOUNTAIN PAPER CO.,
53 Devonshire Street, Boston, or Bellows Falls, Vt.

The WAXED PAPER made under the Hammerschlag process will hereafter be known as
"HAMMERSCHLAG WAXED PAPER,"
and each package will be marked with the accompanying label:

HAMMERSCHLAG
WAXED PAPER.
TRADE MARK.
Manufactured under Letters Patent August 7, 1877; Reissued October 22, 1878; Letters Patent October 29, 1878; Letters Patent July 8, 1879.
THE HAMMERSCHLAG MFG. COMPANY,
NEW YORK.

A FULL LINE CONSTANTLY ON HAND AND FOR SALE AT OUR AGENTS:
GARRETT & BUCHANAN, Philadelphia.
CHASE & CO., Boston.
FITCH, HUNT & CO., Chicago.
THE MERIAM & MORGAN PARAFFINE CO., Cleveland, O.
BLAKE, MOFFITT & TOWNE, San Francisco, Cal.
AND AT OUR OFFICES,
232 and 234 Greenwich St., New York.

(*Continued from first page.*)

on top of them, then the "water cure" will bring them to time in short order. There will be no danger of flat places when three rolls are run together, and I believe that the more rolls the better the job will be.

July 22.—The same English gentleman above alluded to, upon taking charge of another old mill, found a felt but little worn which was stored away in the "property room." When a new felt was needed, he caused this one to be brought out, and told the machine-tender to put it on. The machine-tender, however, held up his hands in dismay and said, "Oh, no, sir; we never can run that felt. It is all stretched out, and the devil and ten men can't keep it on the machine!"

"Never mind," said the boss; "let's put it on and try it."

"But it will be no use, sir; it won't run, and you never can make it run."

"Never you mind that, John; just you put that felt on the machine, and we'll run it or spoil it."

Amid many grunts and much grumbling the felt was put on, and after the machine was started it straightway began to double up at the edges, and run first to one side, then to the other of the machine.

The "old man" gave a good look at the whole felt; then he stopped the machine and had the felt slacked up. "Take out those worm rolls," said he, and out they came. The felt worms were stripped off of five rolls; then a level was put on every running piece of that felt business. Here a "state of things" came to light. Everything was out of level and out of line. Two hours were spent in leveling up, shimming under boxes and in adjusting bearings. Then the felt was started and it ran smoothly until worn out. There are lots of such little things always coming to light in a machine-room, and the general run of machine-tenders are such conceited chaps that they will not take good advice as long as they can help it.

Many a time I have seen the "old man" come into the machine-room when the paper was "broke" and bound to stay broken. He would stand and look on a few minutes, and then say, "Sam, your shake is too hard or that suction-box is a little off." Now, the worst job about repairing a watch is to find out what the trouble is, and the same thing can be said about a paper-machine. Usually the machine-tender would do everything else before he would take the "old man's" advice, but he never did take it without curing the trouble. A man who stands calm and quiet usually has a much better chance to locate trouble than the man who is rushing about all excited and perhaps cross and tired.

July 25.—Once in a while a chap tumbles into the drainer-room through the elevator-well, in spite of all the guards and gates which may be or may not be rigged before the opening

Yesterday I saw an excellent device for use when the elevator is only a "one-story affair," that is, when it does not run up into the rag-room.

The device in question consisted of a light section of floor, built to slide in the elevator guides. Stops were arranged to receive this floor and to hold it flush with the engine-room floor. Stout cross-pieces were bolted on top of the elevator yoke, and the movable floor went up on top of them when the elevator came up. It was a neat device and a good one. In all cases it is available for the top landing or any elevator.

(To be continued.)

The Manufacture of Lace-Paper.

Germany has been supreme in the manufacture of what is known as lace-paper and this branch of industry was for years conducted with persistent adherence to old methods, and with scarcely any effort to improve upon the processes of manufacture.

The industry is of considerable importance, the use of lace-paper having much increased of late years, the number of articles which are embellished with this form of ornamentation being exceptionally large. Since 1877 great improvement has been made in Germany in the artistic quality of the patterns and in the method of manufacturing the lace. The awkward and noisy use of the leaden hammer has been generally relinquished, and powerful and ingenious machines have been contrived by which a great saving in time is effected and more regular results are obtainable. For punching out the required perforation, carefully cut steel plates are employed both in hand and machine work. The perforation of the plates is difficult, especially when punching and pressing have to be employed in combination, and those engravers who make a specialty of this class of work receive excellent wages.

Rolling-machines or stamping-presses are used according as a rolled or flat pressure is to be employed. The preparation of lace-paper by means of the pressing-roller machine takes place in the following way: Two wheels are so arranged that the greater distance between them is somewhat greater than the thickness of the engraved steel plate and somewhat less than the thickness of the plate, together with the paper laid upon its surface and the protecting piece of cardboard. The first trial shows clearly what the position of the wheels must be in order that the pressing, cutting and stamping may be sufficient. When the machine is set in motion the two wheels turn in opposite directions and the pattern is automatically produced. By this means difficult patterns and large sizes are cut through and stamped with the greatest ease. The wheelwork remains constantly in motion. The workman has only to place the paper and protective piece of cardboard on the engraved plate, to approach this to the rollers, and then to remove the finished lace-paper. The work produced by a press-roller machine is much superior in finish to that produced by handwork, all the perforations having sharp edges and the engraved block being spared by the perpendicular application of the pressure.

The second ordinary form of the lace-paper machine, the printing-press, requires a greater application of force, and serves for instantaneous pressing and cutting out. While the pressure of the pressing-roller machine works constantly upon one line, the pressure in this instance is equally applied to the entire surface. The distance between the table and the head stock plate, together with the amount of pressure, can be accurately adjusted as in the roller machine. The pressure is produced by means of a knee which raises the plate against the head stock. The drawing out of the table after the pressure has been applied is effected automatically, and the table remains so long outside that the workman can push it in again with the hand. The rapidity of this press equals twelve pressures per minute, deducting the time required for deposing and removing the papers. All that the workman has to do is to lay the paper and the protecting piece of cardboard on the engraved steel plate and to push in the table. Everything else is effected automatically by the press. The presses are of great power.

For lighter forms of work hand-presses can be used, which are of similar but slighter construction. The greatest pressure is produced by the stamping-roller machines. These machines are also employed in the fabrication of perforated and stamped cardboard. The articles produced by this means are of very various kinds, and include not only fancy cardboard articles, lamp-shades and scutcheons, but also chair bottoms, coffin ornamentations, canvas-paper, "Fröbel's toys," chromos, picture-frames, &c. The prices of lace and fancy paper have already fallen to such a degree in consequence of competition that only by constant attention to new and effective patterns, and by the introduction and employment of good machines, is a moderate profit obtainable.

New Patents.

No. 364,720. Leader for Paper-Calender Rolls.—George Dunn, Lee, Mass., assignor of one-half to Thomas A. Boyne, same place.

No. 365,343. Separating Apparatus for Paper Pulp, &c., Suspended in Liquids.—Rudolph Kron, Golzern, Saxony, Germany. Patented in England November 11, 1886, No. 14,603; in France, November 11, 1886, No. 169,786; in Austria-Hungary, November 11, 1886; in Belgium, November 11, 1886; in Germany, November 12, 1886, No. 5,118, and in Italy, December 2, 1886, XX., 20,760.

MARSHALL'S PERFECTING ENGINE.

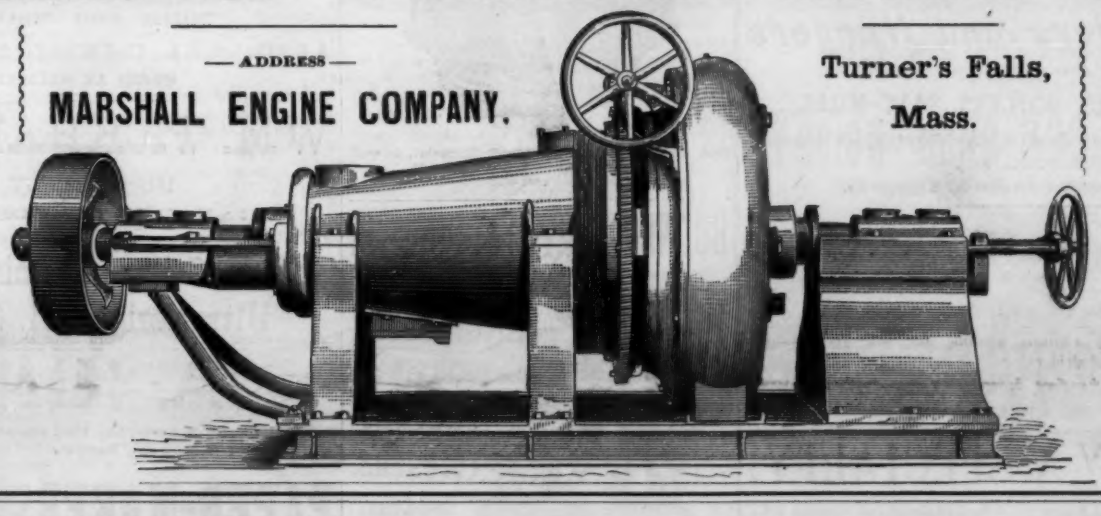
MONTAGUE PAPER COMPANY,
TURNER'S FALLS, MASS., June 20, 1887.

FRANK J. MARSHALL, Esq.
Dear Sir—The Perfecting Engine we have had in use for the past year gives us perfect satisfaction, and we think it a great improvement over the Jordan engine, and does not take any more power. Please enter our order for another engine, and deliver to us as soon as possible.
Yours truly,
MONTAGUE PAPER CO.,
PORTER FARWELL, Supt.

CROCKER MANUFACTURING CO.,
PAPER MANUFACTURERS,
HOLYOKE, MASS., February 8, 1887.

MR. FRANK J. MARSHALL, Turner's Falls.
Dear Sir—We are pleased to be able to inform you that the patent Refining Engine which you put in for us some time ago is giving us perfect satisfaction. We find that it is superior to the "Jordan" engine, both in the quality and quantity of the stuff produced, and that it will make stuff either "free" or "slow," as the desired quality of the sheet may require. So far as we have been able to determine, we are convinced that it takes no *more*, and probably *less*, power than a "Jordan" for the same amount of stuff refined, and for a complete Refining Engine we consider it superior to any other we have seen.
Yours very truly,
C. A. CROCKER, Agent.
J. W. MULLEN, Supt

—ADDRESS—
MARSHALL ENGINE COMPANY.



Turner's Falls,
Mass.

THE WINONA PAPER COMPANY,
HOLYOKE, MASS., April 6, 1887.

MR. F. J. MARSHALL.
Dear Sir—We find the "Marshall Refining Engine," which we put in three weeks ago, superior in many respects to the Jordan engine. With it we are able to make the same stuff "free" or "slow," as we may desire. It has not the tendency to string when working long stuff peculiar to the Jordan, and it gives a more uniform fibre than the latter engine. Very truly yours,
THE WINONA PAPER CO.
C. A. CUTTERSON, Supt.
J. P. STONE, Asst. Treas.

HOLLINGSWORTH & WHITNEY COMPANY,
PAPER AND PAPER-BAG MANUFACTURERS,
WATERTOWN, MASS., June 10, 1887.

MR. F. J. MARSHALL, Turner's Falls, Mass.
Dear Sir—In reply to your request for a statement of what your "Perfecting Engine" has done for us, I am pleased to say that we have given it a trial of two weeks, and find good results so far. We never had our paper so free from strings as since using it. Just previous to trying yours we had been using a common Jordan engine with good results; but we find that yours goes ahead of that. We require a long fibre in our paper, and your improvement gives it to us. The capacity of "Perfecting Engine" is so great that we shall put it in place to refine the stuff for two of our machines. We have put 550 pounds per hour through easily. Yours very respectfully,
A. H. HARTWELL, Supt.

INDURATED FIBRE WARE.

HOUSEHOLD GOODS! Best and Cheapest.

PAILS.

NO HOOPS!

WASH-TUBS.

SEAMLESS!

HANDLED BY PAPER DEALERS GENERALLY.

MILK-PANS.

WASH-BASINS.

SEAMLESS

Pails, Tubs, Pans, Basins, Spittoons, Keelers, &c.

MOLDED in one piece from wood pulp. Treated chemically, giving great strength and durability, and at the same time making the ware impervious to liquids, hot or cold. Being neither painted nor varnished it will not impart taste to anything put in it, and will not further absorb liquids or odor so as to become heavier or foul. Is very light. Has no hoops to drop or rust off. Warranted absolutely seamless and unaffected by extremes of weather.

EVERY ARTICLE WARRANTED.

FACTORIES:
Portland, Me. Watertown, Mass. Mechanicville, N. Y.
Oswego, N. Y. Lockport, N. Y. Winona, Minn.

UNION INDURATED FIBRE CO.,
110 Chambers Street, New York. 39 Wabash Avenue, Chicago.

THE "SENECA" SCREEN.

Entirely New Principle.

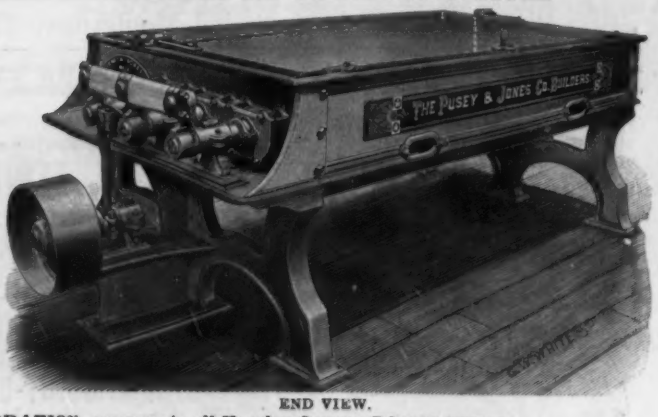
ALL PARTS STRONG AND WELL PROPORTIONED.

END VIEW.

OPEN VIEW.

Self-Cleaning.

SUITABLE FOR ALL KINDS OF STOCK.



END VIEW.

Patents for the "SENECA" Screen have been Obtained in all Countries where Patents are Granted.
The operation of the Brass Buckets, which are located and vibrate immediately below the Screen Plates, effectually prevents the formation of lumps or strings. The buckets thoroughly wash the screen plates and the inside surfaces of the screen box.

THE NOISE AND VIBRATION common to all Knocker Screens DO NOT EXIST.
The "Seneca" is self-contained, and may rest upon any ordinary foundation. The stock may be carried several inches deep on top of the screen plates, or a portion of the plates may be uncovered and bare, if desired.

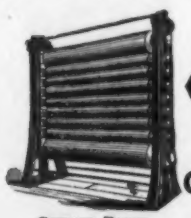
FOR FURTHER INFORMATION ADDRESS

THE PUSEY & JONES COMPANY, Builders of Paper Machinery, Wilmington, Del.

FARREL FOUNDRY AND MACHINE CO.,

ANSONIA, CONN.

The Largest Makers in the world of



CHILLED ROLLS.

CHILLED ROLLS,

FOR PAPER.

ALSO,

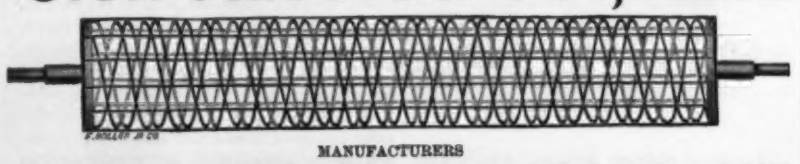
CHILLED AND DRY SAND ROLLS,

FOR ALL OTHER PURPOSES.

All our Rolls are ground by the Poole Grinder, which guarantees their perfectness and finish

☞ Old Rolls Reground at Short Notice.

C. H. SMITH & CO., HOLYOKE, MASS.



MANUFACTURERS

The ORIGINAL and ONLY ENTIRE HOLLOW TRUSS-WOVE and LAID DANDY ROLLS,

On an entirely new principle. Constructed by two double coils of wire wound in opposite directions, crossing each other, thereby forming a perfect truss which makes the lightest and stiffest roll in the market.

LETTER, MONOGRAMS AND DESIGNS A SPECIALTY.

POOLE & HUNT'S

Leffel Turbine Water-Wheel,

Made of Best Materials and in the Best Style of Workmanship.

MACHINE-MOLDED MILL GEARING,

From 1 to 20 feet diameter, of any desired face or pitch, molded by our own Special Machinery.

Shafting, Pulleys and Hangers

OF THE LATEST AND MOST IMPROVED DESIGNS.

STEAM-ENGINES, BOILERS, SAW-MILLS,

Mixers and General Outfit for Fertilizer Works.

☞ Shipping Facilities the Best in all Directions.

POOLE & HUNT, Baltimore, Md.

N. B.—SPECIAL ATTENTION GIVEN TO HEAVY GEARING.

CYRUS CURRIER & SONS, NEWARK, N.J..

General Machinists, Founders and Engine Builders.

PAPER MACHINERY A SPECIALTY.

Fourdrinier and Cylinder Machines, Chilled Iron and Paper Calenders, Beating and Washing Engines, &c. All Steel Roll Bars and Bed Plates cheaper and better than Laid Bars.

KINGSLAND BEATING ENGINE,

THE BEST AND CHEAPEST. UPWARD OF TWO HUNDRED IN USE.

CRIMPED & CORRUGATED

IRON ROOFING,

SIDING, CEILING. METAL SHINGLES.

W.G.HYNDMAN & CO.

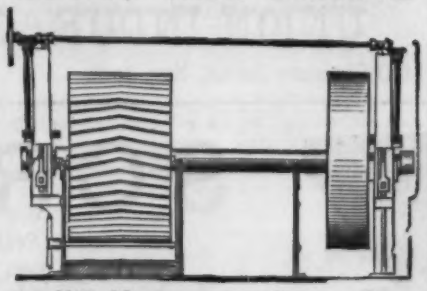
SEND FOR CIRCULAR & PRICES CINCINNATI, O.

CRESSMAN'S IMPROVED RAG ENGINE

With Geared Lighter, for raising both ends of the Roll-Shaft alike.

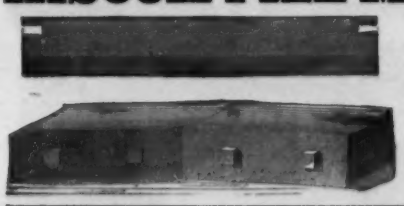
THE roll in this Engine has angular knives or fly bars, whereby the stock is more effectively and rapidly acted upon, making more regular and even stuff. This improvement is in use in a number of leading mills.

For further information, address



GEO. W. CRESSMAN, Lafayette Hill, Montgomery County, Pa.

HISCOX FILE MFG. COMPANY,



West Chelmsford, Mass.,

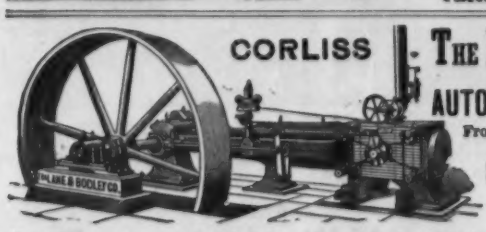
MANUFACTURERS OF

PAPER MILL ENGINE PLATES,

FLY BARS,

Rag and Bed Knives, &c.

PRICES CHEERFULLY FURNISHED



CORLISS

THE LANE & BODLEY CO.

MANUFACTURERS OF

AUTOMATIC CUT-OFF ENGINES,

From Heavy Patterns and of unequaled workmanship.

Steel Boilers, Feed Water Heaters,

SHAFTING, PULLEYS and GEARING.

THE LANE & BODLEY CO., 263 to 271 Water St., Cincinnati, Ohio.

STONE & FORSYTH,

Wholesale Dealers and Jobbers in

PAPER AND TWINE

OF ALL KINDS,

268 Devonshire St., Boston, Mass.

N.-E. AGENTS FOR THE VICTOR SQUARE BAGS.

We make a specialty of WRAPPERS and MARLINE for PAPER-MAKERS' use.

☞ SEND FOR SAMPLES.

Samples and Consignments from Mills solicited.

Sectional Insulated Air

COVERINGS

For Pipes, Boilers Drums and all other hot or cold surfaces.

The Best IN THE World.

ASBESTOS CEMENTS, PACKING, SHEATHING, ETC.

SHIELDS & BROWN CO.

143 WORTH STREET NEW YORK. 78 & 80 LAKE STREET. CHICAGO.

LANCASTER

TURBINE WHEEL CO.,

Lancaster, Pa,

We guarantee every Wheel to give entire satisfaction.

PRICES TO SUIT THE TIMES.

Our Wheel is built of the Best Material, is well fitted up, does not leak or clog. State requirements and write for prices.

RODNEY HUNT MACHINE CO.

We guarantee every Wheel to give entire satisfaction.

Orange, Mass., U. S. A.,

ENGINEERS, MACHINISTS, Iron and Brass FOUNDERS.

SPECIALTIES: TURBINE WATER-WHEELS, Horizontal and Vertical.

Power Transmitting Machinery.

ALSO, Regulators

State requirements and write for prices.

AUGUSTINE SMITH & CO.

PAPER WAREHOUSE,

Nos. 110 & 112 NASSAU ST., NEW YORK.

— AGENTS FOR —

The Chelsea Paper Mfg. Co., Tileston & Hollingsworth and J. & R. Kingsland.

C. A. CHENEY,

— IMPORTER OF —

PAPER STOCK AND SIZING,

58 & 60 Federal Street,

BOSTON.

PRICE & LONGLEY,

PAPER

Flats, Ruled Goods, Folded Writings, Cardboard, Etc,

182 and 184 WABASH AVE.,

CHICAGO, ILL.

CHEMICAL WOOD PULP.

All Spruce, Bleached and Unbleached for Manillas Book and Writings. Free from Bleach and Soda. Send for Samples to

WM. ANGUS & CO.,

MONTREAL, CANADA.

ALUM—Peerless, Concentrated, Excelsior, Eagle, Cake, Ammonia and Potash Alums.

TACONY CHEMICAL WORKS.

CHARLES LENNIG & CO., LIMITED

The Oldest Alum Manufacturers in America.

OFFICE: 112 SOUTH FRONT STREET, PHILADELPHIA.

G. H. NICHOLS & CO.,

MANUFACTURING CHEMISTS,

No. 41 Cedar Street, New York,

OIL VITRIOL, ALUM,

—AND—

HEAVY CHEMICALS GENERALLY.

Our Refined Oil Vitriol is the Purest Commercial Acid made in the World. Our Alum is free from Iron.

LAUREL HILL CHEMICAL WORKS.

THE FAIRFIELD CHEMICAL CO.,

71 Wall Street, New York,

MANUFACTURERS OF

OIL VITRIOL,

Nitric and Muriatic Acids, Aqua Fortis.

ALSO, ALL CHEMICALS FOR PAPER MAKERS.

WORKS AT BRIDGEPORT AND NEW HAVEN, CONN.

WM. PICKHARDT & KUTTROFF,

98 Liberty Street, New York,

BRANCHES AT BOSTON AND PHILADELPHIA,

— IMPORTERS OF —

Aniline Colors, Carmine, Pulp Colors, Eagle Brand Ultramarines, N. C. F Concentrated Alum.

A. KLIPSTEIN,

BRANCH OFFICES: 20 N. Front St., Philadelphia. 134 Milk St., Boston. | *52 Cedar Street, New York.*

PAPER-MAKERS' CHEMICALS AND COLORS,

Concentrated Alum, Aniline Colors, Antichlor.

WING & EVANS,

Commission Merchants,

No. 92 WILLIAM STREET, NEW YORK

Soda Ash, Sal Soda, Caustic Soda, Bleaching Powders.

— AGENTS FOR —

BRUNNER, MOND & CO. SOLVAY PROCESS CO.

C. ALLHUSEN & SON. W. PILKINGTON & SON.

HAY, GORDON & CO.

VENETIAN AND STRONG REDS,

Ochres, Clays and Copperas,

MANUFACTURED EXPRESSLY FOR PAPER MAKERS' USES BY

THE S. P. WETHERILL CO., Limited,

13 PLATT STREET, NEW YORK. | 47 N. FRONT ST., PHILADELPHIA.

EDWARD HORE,

MANUFACTURER AND IMPORTER OF

Chemically Pure Colors

FOR PAPER STAINERS,

62-68 NORTH ELEVENTH STREET, BROOKLYN, N. Y.

CHAS. E. HORE, Superintendent.

HUDSON RIVER ANILINE COLOR WORKS,

—ALBANY, N. Y.,—

MANUFACTURERS OF

Aniline Colors for Paper Makers' Use.

SPECIALTIES: FINEST ANILINE BLUES FOR NEWS AND BOOK

AMERICAN ULTRAMARINE WORKS.

HELLER & MERZ,

MANUFACTURERS OF

ULTRAMARINE,

Especially for Paper Manufacturers.

☞ FUCHSINE, EOSINE AND VIOLET ANILINES.

No. 55 MAIDEN LANE, NEW YORK.

DIRECTORY.

Cards under this heading will be charged for at rate of $15 per annum for each card.

NEW YORK HOUSES.

Grindstones for Wood Pulp.

P. SURY, sole agent of Israel Brothers, Dresden, German Grindstones. 14 Dey Street, New York.

Jute Butt Brokers.

CABOT, RAY & CO. 81 Water st.

DALAND, WILLIAM S., 124 Water st., N. Y.

HANSON, CHARLES A. 97 Water st.

TUCKERMAN, G., 72 Beaver st., N. Y.

Note Broker.

GOLDMAN, M., & SACHS, Negotiate the Notes of Mfrs. and Dealers of Paper. 4 & 6 Pine st., room 9.

Paper Clay.

McNAMEE & CO., RICH'D, 234 Broadway, N. Y.

Paper and Paper Makers' Supplies.

BELDEN & DEAN, Paper Bags, Flour Sacks, Manilla and Straw Papers. 166 Fulton st., N. Y.

BUTLER & JOHNSON, 44 Beekman st., N. Y.

CROTTY, MELVILLE & CO., Paper and Twine, 428 Broome st., N. Y.

HEWITT, C. B., & BROS., Printing, Wrapping, Building Papers. 48 Beekman st., N. Y.

HURLBERT, H. C., & CO., 53 Beekman st.

MURPHY, JOHN J., 47 John and 5 Dutch sts.

Paper Manufacturers.

DIAMOND MILLS PAPER CO., White and Colored Tissues, Copying-Paper, 44 Murray Street. Send for Samples of the new "Mikado" Tissue-Paper.

HAND, A. F., White and Colored Tissue and Copying Paper; mill at Peekskill. Paper Warehouse and office, 51 Beekman st., New York.

ORRS & CO., Printing and Hanging Mills at Troy. Roll Papers a Specialty. Office, 132 Nassau st., N. Y.

Paper Makers' Chemicals and Colors.

SERGEANT BROS. 132 Nassau st., N. Y.

Printed Wrapping Paper.

THOS. A. O'KEEFE. Printed Wrapping, 48 & 50 Duane.

Rags and Paper Stock.

ATTERBURY BROS., 140 Nassau st.

BAKER, H. J., & BRO., Japan Rags, 215 Pearl st.

DARMSTADT & SCOTT, 312 Water st., N. Y.

EVANS & CURRY, 44 Rose Street, New York.

FLYNN BROS., 61 Congress st., So. Brooklyn, N. Y.

GILDEA, PATRICK, 445 & 447 West 13th st.

HARLEY, CHARLES, Cotton and Woolen Rags, 362 Third st., New York.

HENNESEY, JAS., & CO., 62 Duane st., N. Y. Warehouses, 110, 112 & 114 Navy st., 233, 235 & 237 Tillary st., Brooklyn, and 314 N. 8th st., Brooklyn, E. D.

HILLS, GEO. F., & CO., 98 Gold st., N. Y.

HUGHES BROS., 60-66 N. 2d st., Brooklyn, N. Y.

LIBMANN, JOSEPH, & CO., New Rags a Specialty. 158 South Fifth ave., N. Y.

LYON, J. W., & CO., 44 and 46 Duane st., N. Y.

LYON, JOHN H., & CO., 10 & 12 Reade st., N. Y.

McQUADE, ARTHUR J., 535 & 537 E. 13th st., N. Y.

MORE & IRVINE, Rags, Paper Stock, Rubber, &c., 140 Baxter st., N. Y.

O'MEARA, M., 277 Water st., N. Y.

OVERTON, R. H., 8 Reade st., N. Y.

PEYTON, R., & CO., Paper and Paper Stock, 56 Thomas st.

ROZÉS BROTHERS, Tribune Building.

RUSSELL, JAS. H., successor to M. RUSSELL, 30 City Hall Place, New York City.

SAVAGE, JAMES, Jr., 530 to 536 W. 38th st., N. Y.

SERGEANT BROS., 132 Nassau st., N. Y.

STOCKWELL, JOHN C., Dealer in Paper-Makers' Stock. (Established 1850.) 44 Ann st., N. Y.

WARD, OWEN, & SONS, 448 & 450 West 39th st.

WYNNE, T. F., 13 & 15 Columbia st., Brooklyn, N. Y.

YOUNG, P., Washington av. near Wallabout Bridge, Brooklyn, E. D.

Straw Boards.

HAYES, JAMES E., & CO. 75 Duane st.

JAEGER, GUSTAV L., Straw Boards, Lining and Box Machinery. 136 and 138 Mulberry st., N. Y.

OUT OF TOWN HOUSES.

Architects.

TOWER, D. H. & A. B.—Designs for Paper and Fibre Mills. Surveys and Plans for Mill Sites. Valuations of Mill Properties. Holyoke, Mass.

Dandy Roll Manufacturers.

BUCHANAN, BOLT & CO., Patent Seamless Wove and Laid Dandy Rolls. Holyoke, Mass.

CHENEY BIGELOW WIRE WORKS, Springfield, Mass. Pat. Seamless Wove and Laid Dandy Rolls.

Grindstones for Wood Pulp.

UNION STONE CO. (EMERY), Boston, Mass.

Paper Manufacturers.

JERSEY CITY PAPER CO., White and Colored Tissue & Manilla Wrapping, Cornelison avenue and Montgomery st., Jersey City, N. J.

Paper Makers' and Paper Stainers' Colors.

HAMPDEN PAINT & CHEMICAL CO., Springfield, Mass.

Paper Making Machinery.

SMITH, WINCHESTER & CO., South Windham, Ct.

THE SIBLEY MACHINE CO., Norwich, Conn.

Rags, Paper and Paper Stock.

BULKLEY, RAIGUEL & CO. (Late with J. G. Ditman & Co.), 22 South Fifth and 500 and 502 Minor st., Philadelphia.

BUTLER, THOMAS, Cotton and Woolen Rags, Iron and Metals. 249 Causeway st., Boston, Mass.

BRODERICK BROS., 608-614 W. Pratt St., Baltimore.

ELLIOT, A. G., & Co., Paper and Paper Stock, 32 and 34 South Sixth st., Philadelphia.

GRAVES, FRANK B., All-Wool Shoddies, Cotton and Wool Waste, Noils, &c. 137 River St., Troy, N. Y.

HEY, LEVI, Paper and Paper Stock, Rochester, N. Y.

LANEY, JAMES, & CO., Dealer in Paper and Paper Stock, Cotton and Woolen Rags, Rochester, N. Y.

MAYO, A. N., & CO., Successors to Dickinson & Mayo, Rags and Paper Stock. Springfield, Mass.

McKEON, P. & J., Dealers in Woolen and Cotton Rags, &c. 253 Fourth st., Brooklyn, E. D.

Rags, Paper and Paper Stock.

MILLET, GEO. W., Straw and Manilla Papers, Paper Bags and Flour Sacks, 507 N. 2d St., Phila., Pa.

RICHMOND & CO., F. H., Paper and Paper Stock Warehouse, Cotton Waste Dealers, Providence, R. I.

SIMMONS, JOHN, Wholesale Dealer in Paper and Rags, 20 and 22 Decatur street, Philadelphia.

SNIDER'S, LOUIS, SONS, Manufacturers and Wholesale Paper Dealers, 121 Walnut st., Cincinnati, Ohio.

WILLCOX, JAMES M. & CO., Wholesale Commission Paper and Rag Warehouse, 509 Minor street, Philadelphia, Pa.

Rosin for Paper Makers.

E. E. CLARK is at first hands for perfectly clean Batting Strained Rosin for Paper-Maker's use. Orders solicited. 5 Custom-House St., Botson, Mass.

Screen Plate Manufacturers and Repairers.

ASHMUN SCREEN PLATE CO., old plates renewed; charges moderate. P. O. Box 210, Paterson, N. J.

HARDY & PINDER, manufacturers of Patent Cast-Metal Sectional Screen Plates. Fitchburg, Mass.

JUDSON, A. C., & WILLIAMS, successors to late Howard Judson, Holyoke, Mass., manufacturers of Patent and the ordinary Screen Plates.

Straw Boards.

PINKHAM, T., agent for Androscoggin Pulp Co.'s White Box Boards and Ashland Leather Board, 24 Friend and 52 Elm streets, Boston, Mass.

TUCKER'S, E., SONS, Straw Boards, Paper, Twines, Paper Box Mach'y, 100 Trumbull st. Hartford, Conn.

IMPORTS AT NEW YORK.

FOR THE WEEK ENDED AUGUST 5, 1887.

An. Colors..	461	$36,603	Paper.....	545	$39,386
Alum.....	302	1,064	Steel Pens...	1	461
Alum's Cake	—	—	Stationery...	93	765
Bl. Powders.	248	4,984	Slate Pencils	158	689
Soda Ash...	570	11,758	Clay	—	2,998
Soda, Caus..	301	3,301	Jute Butts...	1,710	10,865
Soda, Sal....	2	5	P. Hangings	3	358
Ultramarine.	44	1,797	Paper Stock.	8,716	76,925
Books.....	246	28,727	Terra Alba..	—	—
Newspapers.	69	3,710	Waste.....	106	22,490
Engravings.	56	16,477	Wood Pulp..	4,386	12,134
Ink.....	88	1,019			
Lead Pencils	8	2,014	Totals....	18,045	278,460

Imports General Merchandise for the week ended August 5, 1887..... $6,566,437

IMPORTS OF PAPER STOCK AT NEW YORK.

JANUARY 1 TO AUGUST 9, 1887.

Whence Imported.	*Rags.* Bales.	*Old Papers.* Bales.	*Wood Pulp.* Bales.	*Manilla Stock.* Bales.
Alexandria.....	2,040	—	—	365
Amsterdam.....	—	—	649	—
Antwerp.....*a*	600	—	1,997	1,104
Arendal	—	—	600	—
Belfast.....	72	—	—	—
Bordeaux	228	—	—	37
Bremen.....	3,058	—	—	1,811
Bristol	—	—	—	475
Calcutta.....	100	—	—	3,421
Christiania.....	89	—	21,218	73
Copenhagen.....	34	—	23,342	236
Dundee.....	126	1,933	—	10,394
Genoa.....	—	—	—	2,225
Glasgow	57	705	—	89
Gothenburg.....	—	—	15,409	161
Hamburg.....*b*	3,506	80	1,436	2,406
Hiogo.....	17,998	—	—	—
Hull.....*c*	15,233	1,078	28,729	9,454
Leghorn	2,395	—	—	—
Leith.....	107	1,314	—	887
Liverpool.....*d*	5,789	3,215	123	12,114
London.....*e*	8,258	9,733	4,196	5,579
Marseilles.....	314	—	—	34
Nassau.....	—	—	—	34
Pillau.....	867	—	—	—
Newcastle.....	—	—	750	710
Rotterdam	1,608	164	848	52
Salonica.....	362	—	—	—
Stettin.....	3,866	—	23,768	2,391
Swinemünde.....	699	—	2,747	196

a. Including 170 bs. flax waste.
b. Including 214 bs. cotton waste.
c. Including 481 bs. flax waste and 1,438 bs. cotton waste.
d. Including 3,238 bs. cotton waste.
e. Including 539 bs. cotton waste and 369 bs. flax waste.

NEW YORK IMPORTS.

FROM AUGUST 2 TO AUGUST 9, 1887.

Paper Stock.

Train, Smith & Co., Glendon, Calcutta, 182 bs. manillas.
Train, Smith & Co., Samuel Skolfield, Calcutta, 261 bs. manillas.
Norwegian Wood Pulp Company, Heckla, Christiania, 2,321 bs. wood pulp.
John H. Lyon & Co., by same, 1,000 bs. wood pulp.
Darmstadt & Scott, Monte Rosa, Dundee, 78 bs. jute threads, 58 bs. paper.
Jessup & Moore, Critic, Dundee, 11 bs. rags, 188 bs. thread waste.
Burgass & Co., Sorrento, Hull, 25 bs. papers.
John H. Lyon & Co., Otranto, Hull, 185 bs. bagging.
John H. Lyon & Co., Salerno, Hull, 2,654 bs. wood pulp.
Burgass & Co., Martello, Hull, 86 bs. rags.
M. A. Ring, Jr., by same, 120 bs. wood pulp,
Norwegian Wood Pulp Company, by same, 740 bs. wood pulp.
Perkins, Goodwin & Co., by same, 205 bs. rags, 106 bs. bagging.
Otto Baerlein, by same, 120 bs. wood pulp.
A. Wertheim & Co., by same, 81 bs. bagging, 150 bs. rags.
John H. Lyon & Co., by same, 86 bs. bagging,
E. Hatton & Co., by same, 12 bs. rags.
W. A. Castle, Nuova Stella, Leghorn, 300 bs. rags.
W. A. Castle, G. Codigtota, Leghorn, 200 bs. rags.
James Pirnie, City of Chicago, Liverpool, 614 bs. cotton waste.
Perkins, Goodwin & Co., St. Ronans, Liverpool, 512 bs. cotton waste, 360 bs. bagging.
James Pirnie, by same, 146 bs. cotton waste.
J. W. Lyon & Co., by same, 98 bs. papers, 153 bs. cotton waste.
M. A. Ring, Jr., by same, 173 bs. bagging, 64 bs. papers.
S. W. Wilder, by same, 109 bs. papers.
Train, Smith & Co., by same, 123 bs. wood pulp, 37 bs. rope.
Darmstadt & Scott, Denmark, London, 192 bs. bagging, 67 bs. papers.
A. Wertheim & Co., Greece, London, 700 bs. wood pulp, 18 bs. rags.
Perkins, Goodwin & Co., by same, 200 bs. wood pulp, 26 bs. rags.
Woolworth & Graham, by same, 32 bs. rags.
John L. Taylor, by same, 145 bs. cotton waste.
Wing & Evans, by same, 170 bs. wood pulp.
Darmstadt & Scott, W. A. Scholten, Rotterdam, 50 bs. papers.

Paper.

Gane Brothers, Noordland, Antwerp, 14 cs.
Samuel M. Marks, by same, 20 cs.
John Campbell & Co., by same, 7 cs colored.
American News Company, by same, 12 cs.
Keuffel & Esser, by same, 12 cs.
L. De Jonge & Co., by same, 4 cs.
Steglich & Baesse, by same, 12 cs.
Samuel M. Marks, Hermann, Antwerp, 7 pkgs.
Keuffel & Esser, by same, 2 cs.
Henry Bainbridge & Co., Main, Bremen, 3 cs.
Kaufmann & Co., by same, 4 cs.
E. H. Pollock, California, Hamburg, 16 bs.
L. De Jonge & Co., Britannic, Liverpool, 2 cs.
A. F. Hand, by same, 2 cs.
W. S. Kimball & Co., by same, 11 cs.
Vernon Brothers, by same, 12 bdls.
R. F. Lang, Werra, Bremen, 1 cs. hangings.
Steglich & Baesse, by same, 6 cs.
E. & H. T. Anthony & Co., Rugia, Hamburg, 1 cs.
P. Gottald & Co., by same, 7 cs.
G. Gennert, by same, 11 cs.
F. J. Emmerich & Co, Edam, Bremen, 4 cs. hangings.
Kaufmann & Co., Ems, Bremen, 3 cs.
Steglich & Baesse, by same, 4 cs.
Herter Brothers, La Normandie, Havre, 1 cs.
R. Greiff, by same, 3 cs.
A. V. Benoit, by same, 21 cs.
Allen & Ginter, by same, 3 cs.
F. W. Devoe & Co., by same, 6 cs.
Edward Hen & Co., by same, 5 cs.
L. De Jonge & Co., Rhynland, Antwerp, 15 cs.
Steglich & Baesse, by same, 4 cs.

EXPORTS of Paper, &c., from New York for the Week Ended August 9, 1887.

BOOKS, cases, to British Australasia, 1; to London, 8; to Mexico, 1; to Venezuela, 6; to British possessions in Africa, 2; to Cuba, 1; to Constantinople, 7; to Japan, 1; to Liverpool, 21; to New Zealand, 5.

PAPER.—To British West Indies, 55 rms.; to United States of Colombia, 14 pkgs.; to Central America, 1,200 rms., 6 pkgs.; to London, 67 pkgs.; to Cuba, 10,000 rms., 12 pkgs.; to Mexico, 58 rms., 2 pkgs.; to Venezuela, 3 cs.; to Liverpool, 36 pkgs; to Peru, 1 pkg.; to Dutch West Indies, 21 pkgs.; to Hamburg, 9 cs.; to Amsterdam, 1 cs.; to Brazil, 800 rms., 64 pkgs.; to British Guiana, 12 rms., 11 pkgs.; to Ecuador, 2 pkgs.; to Hayti, 2 pkgs.; to Hull, 2 cs; to New Zealand, 50 cs.; to Rotterdam, 35 cs.; to San Domingo, 525 rms., 16 pkgs.

STATIONERY, cases, to Liverpool, 35; to United States of Colombia, 15; to Central America, 8; to Mexico, 34; to Cuba, 6; to Venezuela, 3; to Porto Rico, 1; to British Australasia, 7; to Brazil, 12; to Ecuador, 1; to Chili, 1; to Hayti, 3; to Hull, 2; to London, 17; to New Zealand, 3; to Peru, 15; to San Domingo, 3.

AGGREGATES AND VALUES.

Paper, reams..	12,630	$1,308
Paper, pkgs.....	300	2,762
Paper, cases.....	112	1,821
Books, cases.....	47	3,404
Rosin, bbls.....	1,992	5,145
Stationery, cases	272	11,620
Totals.....	15,373	$26,060

Exports General Merchandise for the week ended August 9, 1887..... $5,586,588

BOSTON IMPORTS.

FROM AUGUST 4 TO AUGUST 10, 1887, INCLUSIVE.

Books.

J. Allyn, Bothnia, Liverpool, 2 cs.
Baldwin Brothers & Co., by same, 5 cs.
Stone & Downer, by same, 1 cs.
Carl Schoenhof, by same, 6 cs.
Boston Public Library, Kansas, Liverpool, 1 cs.

Paper, &c

A. H. Roffe & Co., Bothnia, Liverpool, 5 bs. periodicals.
Houghton, Mifflin & Co., by same, 2 bs. periodicals.
Forbes Company, by same, 1 cs. almanacs.
Louis Wolf & Co., Buffalo, Hull, 120 cs. albums.
Horace Partridge & Co., by same, 22 cs. albums.
Jordan, Marsh & Co., by same, 3 cs. albums.
H. H. Carter & Karrick, British Crown, London, 2 cs. stationery.
Horace Partridge & Co., by same, 22 cs. scrap-books.
Frost & Adams, Venetian, Liverpool, 6 cs. drawing-paper.

Paper Stock.

Train, Smith & Co., Scandinavian, Glasgow, 290 bs. paper stock.
Train, Smith & Co., Buffalo, Hull, 142 bs. rags.
C. A. Cheney, by same, 233 bs. paper stock.
Thomas F. Ring, by same, 125 bs. paper stock.
Horace Dutton, by same, 203 bs. paper stock.
Francis Sprague & Co., by same, 84 bs. rags.
S. D. Warren & Co., by same, 307 bs. rags.
M. A. Ring & Sons, by same, 214 bs. paper stock.
Train, Smith & Co., Kansas, Liverpool, 659 bs. paper stock.
Horace Dutton, by same, 367 coils manillas.
C. A. Cheney, by same, 66 bs. rags, 182 bs. manillas.
Order, by same, 118 bs. paper waste.
S. D. Warren & Co., British Crown, London, 133 bs. rags.
Crocker, Burbank & Co., by same, 261 bs. paper stock.
S. W. Wilder, by same, 30 bs. paper waste.
M. A. Ring & Sons, by same, 236 bags paper waste.
W. F. Corne, by same, 38 bs. paper stock.
Stephen Lee, by same, 180 bs. paper waste.
M. A. Ring, Jr., by same, 110 bs. paper stock.
Train, Smith & Co., Roman, Liverpool, 1,543 bs. paper stock.
Horace Dutton, by same, 264 bs. paper stock.
C. A. Cheney, by same, 77 bs. rags, 398 bs. paper stock.
S. W. Wilder, by same, 44 bs. paper waste.
Train, Smith & Co., Gothenburg City, Antwerp, 1,744 bs. rags.
Hollingsworth & Whitney Company, by same, 210 bs. manillas.
Horace Dutton, by same, 899 bs. rags.
Stephen Lee, by same, 73 bs. rags.
Train, Smith & Co., Stockholm City, London, 650 bs. paper stock.
Tileston & Hollingsworth, by same, 236 bs. rags.
M. A. Ring & Sons, by same, 304 coils manillas.
M. A. Ring, Jr., by same, 129 bs. rags.
T. F. Ring, by same, 91 bs. paper stock.
Francis Sprague & Co., by same, 140 bs. rags.

Wood Pulp.

Gill & Louitz, Buffalo, Hull, 320 bs.
Rice, Kendall & Co., Carroll, Halifax, 351 bdls.

Bleaching Powders.

Warren & Co., Kansas, Liverpool, 157 cks.
Morey & Co., Venetian, Liverpool, 175 cks.
Linder & Meyer, by same, 197 cks.
Mason, Chapin & Co., by same, 244 cks.
E. & F. King & Co., by same, 97 cks.

Caustic Soda.

Warren & Co., Kansas, Liverpool, 300 drums.
E. & F. King & Co., by same, 100 drums.
Linder & Meyer, Venetian, Liverpool, 200 drums.
E. & F. King & Co., Roman, Liverpool, 50 drums.

Soda Ash.

J. L. & D. S. Riker, Roman, Liverpool, 81 cks.
Linder & Meyer, Venetian, Liverpool, 214 cks.
Mason, Chapin & Co., by same, 96 cks.

Soda Crystals.

Warren & Co., Kansas, Liverpool, 280 bbls.
Warren & Co., Roman, Liverpool, 280 bdls.
E. & F. King & Co., by same, 400 kegs.

Alkali.

J. A. & W. Bird, Buffalo, Hull, 105 cks.
E. Hill, Son & Co., by same, 50 cks.
J. L. & D. S. Riker, Bothnia, Liverpool, 68 cks.

Sizing.

William Quiren & Co., Buffalo, Hull, 196 bags hide cuttings.
Train, Smith & Co., Kansas, Liverpool, 106 bags hide cuttings.
C. A. Cheney, by same, 117 bs. hide cuttings.
Baeder, Adamson & Co., by same, 90 bags hide cuttings.
Thomas Groom & Co., by same, 90 bags hide cuttings.
Order, by same, 405 bags hide cuttings.
Train, Smith & Co., British Crown, London, 105 bags hide cuttings.
Train, Smith & Co., Roman, Liverpool, 131 bs. hide cuttings.
W. A. Castle, by same, 254 bags hide cuttings.
Thomas Groom & Co., by same, 78 bags hide cuttings.
C. A. Cheney, by same 204 bs. old pickers.

Felts.

Fairchild Paper Company, Roman, Liverpool, 2 bs.

Venetian Red.

Wadsworth, Howland & Co., Buffalo, Hull, 35 cks.
Order, by same, 50 cks.

Rosin.

E. E. Clark, City of Macon, Savannah, 704 bbls.
Order, by same, 190 bbls.

PHILADELPHIA IMPORTS.

FOR THE WEEK ENDED AUGUST 6.

Paper Stock.

Baring Brothers & Co., Lord Gough, Liverpool, 100 bs. bagging.

Chemicals.

Charles Lennig & Co., Simon, Tower, 350 tons china clay.
Order, Lord Gough, Liverpool, 30 drums caustic soda, 136 tcs. soda ash, 129 cks. bleach, 80 cks. soda ash.
Baring Brothers & Co., by same, 100 bs. bagging.
Pennsylvania Salt Manufacturing Company, by same, 125 bbls. caustic soda.
Cooper, Smith & Co., by same, 275 drums caustic soda.
Peter Wright & Son, by same, 100 bags china clay.

TRAIN, SMITH & CO.,
IMPORTERS OF AND DEALERS IN
—ALL DESCRIPTIONS OF—
Paper Makers' Supplies,
24 FEDERAL STREET, BOSTON.
BRANCH OFFICES: 36 BEEKMAN STREET, NEW YORK. 21 ST. MARY AXE, E. C., LONDON. EDMUND ST. CHAMBERS, LIVERPOOL.

BARLOW & CO.,
WHOLESALE DEALERS IN AND PACKERS OF
Woolen Rags and Paper-Makers' Supplies,
237 and 239 South Street, and 66 and 68 Utica Street,
BOSTON, MASS.
WOOLEN RAGS GRADED IN COLORS AND QUALITY.

ROZÉS BROTHERS,
—PACKERS AND SHIPPERS OF—
RAGS AND PAPER STOCK
OF EVERY DESCRIPTION.
Agen (France).
NEW YORK OFFICE: TRIBUNE BUILDING.

THOMAS F. RING,
—IMPORTER OF—
Paper Stock, Jute, Hemp,
FLAX AND COTTON WASTES,
No. 141 FRANKLIN STREET, cor. Federal Street, BOSTON.
☞ CORRESPONDENCE SOLICITED.

THE ALBANY ANILINE COMPANY,
—MANUFACTURERS OF—
Colors for Paper Makers' Use,
PAPER BLUE, Magenta, Yellow, Orange Nigrosene, &c.
Address P. O. Box 35, ALBANY, N. Y.

F. BREDT & CO.,
No. 194 Fulton Street, SOLE AGENTS FOR New York City, U. S. A
JOSEPH PORRITT & SONS'
TRADE-MARK. ENGLISH FELTINGS.
SOLE IMPORTERS OF
MARINE BLUE (Aniline) for Newspaper Mills.
Jacketing, Roll Cloth, Double Extra Canvass, Ultramarine Blue.

L. A. SALOMON & BRO., 216 Pearl Street, New York,
—IMPORTERS OF—
L.A.S. X L.A.S. XX L.A.S. UNXLD
English China Clay.
L. A. S. AND L.A.S.
SILESIAN WHITE.

The Paper Trade Journal.

DEVOTED EXCLUSIVELY TO THE INTERESTS OF

The American Paper Trade.

Weekly, $4.00 per Annum.

Single Copies, - - - 10 Cents.

NEW YORK: SATURDAY, AUGUST 18, 1887.

THE PAPER TRADE JOURNAL is the recognized organ of the various Paper Makers' Associations of the United States.

THE JOURNAL contains the latest and fullest information relative to the paper trade in all parts of the world, including descriptions of new appliances and processes for making paper, experiments with new fibres and other materials, a record of the water supply, with the latest manufacturing news in all parts of the country. It gives the cream of all the foreign technical journals which relate to the paper interest, besides communications from competent persons in the trade, both at home and abroad. The market review and quotations show the state of trade in all the principal cities, and no pains have been spared to make these accurate and complete.

Advertisements cannot be received for insertion in the current week later than 9 A. M. on Friday. The charge for advertising is 25 cents a line, each insertion. Special terms for standing and displayed advertisements to be had on application. Card in Directory Column and one copy of paper, $15 a year.

Subscription and postage for Great Britain..... £1
Subscription and postage for France, per annum..... 25 francs
Subscription and postage for Germany, per annum..... 24 reichsmark

Foreign subscribers may address our New York office.

Payment for subscriptions or advertising may be made by express money-order, draft, post-office order or registered letter.

Communications on matters of interest to the trade are earnestly solicited from all quarters, and if used will be liberally paid for. Items of news and facts of all kinds in relation to the state of the mills, &c., will be gladly received.

All communications must be addressed to

HOWARD LOCKWOOD & CO.,
Publishers.
126 and 128 Duane Street, N. Y.

CABLE ADDRESS: Catchow. New York.

BRANCH OFFICES.

Western Office—W. A. CARROLL, General Manager, 114 LA SALLE ST., CHICAGO, ILL.

Boston Office—A.L. DELESDERNIER, General Manager, 290 DEVONSHIRE ST., BOSTON, MASS.

Southern Office—F. G. HANCOCK, General Manager, CORNER BROAD AND ALABAMA STS., ATLANTA, GA.

FOREIGN GENERAL AGENTS.

M. P. McCoy	Subscription Agent for the United Kingdom, 7 Water Lane, Ludgate Circus, London.
Elfwing & Co.	Stockholm, Sweden.
John L. Sprague	Gibraltar, Spain.
Leonardo Pardo	Vigo, Spain.
C. Galvagno	Turin, Italy.
S. Bernard	Venice and Florence, Italy.
W. & P. Shepherd	Leghorn and Genoa, Italy.
J. H. de Bussy	Amsterdam, Holland and the Dutch East Indies.
Gordon & Gotch	Melbourne and Sydney Australia.
R. T. Wheeler	Dunedin, New Zealand.
W. Snelling	Brisbane, Queensland.
A. G. Webster	Hobart Town, Tasmania.
Knight & Co	Newchwang, China.
I. D. Clark	Shanghai, China.
Sargent, Farsari & Co.	Yokohama, Japan.
Camilo Garcia	Puntas Arenas, Costa Rica.
Caine y Carricaburu	Havana, Cuba.
Seymour Keeler	Valdivia, Chili.
Jose A. Barros	Barranquilla, Colombia.
Carl Th. Bergmann	Copenhagen, Denmark
Edward Grauert	Montevideo, Uruguay.
Bethencourt e hijos	Curaçoa, W. I.
J. O. Ryder	Tamatave, Madagascar.
I. J. Conen de Lissa	Port Louis, Mauritius.
Joaquin G. Castilla	Tampico, Mexico.
G. C. Cato	Durban, Natal.
Thomas G. Thrum	Honolulu, Sandwich Islands.
John G. Clark	Kingston, Canada.
Henry W. Hughes	New Westminster, British Columbia.

TO CORRESPONDENTS.

As THE PAPER TRADE JOURNAL is the recognized vehicle of communication in matters of trade interest, we will be glad to receive correspondence from all parts of the country. Information and suggestion upon paper-making topics are especially valuable, and manufacturing news and personal items are equally acceptable.

Readers of this paper who avail themselves of the information obtained from its columns, by advertisement or otherwise, are requested to notify their correspondents of the source of their information.

Subscribers to THE JOURNAL can be supplied with the best cloth binder in the market. Deliverable at the publication office. Price $1.25.

WE illustrate and describe this week a new form of apparatus designed for effecting the economical recovery of the soda used in the preparation of wood fibre. We commit it to the consideration of the experts in the manufacture of chemical fibre. It will, of course, claim attention. Will it command respect?

A SERIES of failures in the paper trade this week, while not necessarily giving occasion for alarm, will command attention and possibly excite nervousness. Of late the paper trade has had a surfeit of insolvencies, and seems to have started in the way of making up for all of its omissions in this line for the past few years. The lesson has come none too soon. If it shall lead to more circumspection in giving credits and less willingness to take risk, it will have proved profitable to the trade generally.

IT is apparent that since the negotiation of the postal arrangement between Mexico and the United States there has been a disturbed feeling among Europeans. There is a suggested movement in Germany to labor with the Mexican Government for free trade; a one-sided arrangement in which all of the advantage seems to be sought on the side of the Germans, for we have not seen anything which suggests that the latter are willing to reciprocate, although anxious to retain their foothold in Mexico. A proposition like this cannot be expected to go through.

IN reading the plan of business for a meeting of German manufacturers we are impressed with the thoroughness with which the consideration of matters of technical detail is prosecuted in Germany. We have before this referred to the fact that the Germans make a business of mastering the mechanical features of their trade as well as its commercial points, and while all that they do is not commendable they are certainly entitled to credit for their study and scrutiny of all that enters into the technics of trade. The time may arrive, and probably will come, when American manufacturers generally shall find it necessary to be practically familiar with all the processes of production in which they have embarked. When that time comes we will back them for originality and efficiency against the producers of any other country. But there is probably a long time to wait for this.

NOT long ago THE JOURNAL gave an illustrated description of a vacuum-evaporating apparatus which had been brought into use in the process of recovering the soda from alkaline solutions. The process was carried on by what is known as "double and triple effects," a system previously used in the manufacture of sugar. Its principle, which has proved so useful in the manipulation of saccharine prices, ought, it seems, to be equally efficient when applied to other fluids containing in solution any matter or substance susceptible of crystallization, and this view has been accepted by parties interested in the manufacture of wood fibre. And here we have to note a curious coincidence. It is stated that a large Belgian manufacturer of wood fibre has adopted identically the same principle, evaporating his alkaline liquors by triple and quadruple effect, and with satisfactory results. The economies of paper making, as we have before intimated, are not exhausted, and it would be rashness to attempt to define their limits.

IT is difficult to frame a law which shall not admit of evasion, and only experience, with constant legislation to stop up the loopholes of escape, can insure a statute which will be so precise and definite as not to admit of various constructions. The Interstate Commerce law is in the stages of experiment, and the commission appointed to supervise its application and construe its terms has been called upon to decide a number of questions of importance bearing upon the relations of shippers and common carriers. We lately spoke of the opposition which had developed to the freight classifications adopted by the railway companies, and it seems that the complaint on the score of this classification, even if well founded, may be evaded by the plan of giving liberal commissions to freight brokers, the latter in turn making a division or giving a percentage of their gains from this source to shippers, the larger of whom may naturally be expected to secure an advantage over their less important rivals. It will be for the commission to decide whether this is an infringement of the statute, and should it conclude that it is we shall look with interest for the next turn of the railway companies in getting around what seems to be to them a very disagreeable enactment.

IN the old days of paper making stamps were employed for beating the fibres and for bringing them into form for conversion into paper. The principle was the same as that still in vogue in China, where the material is pounded with mallets and reduced until it is fit for conversion into pulp. Among recently patented inventions—the novelty of which may be questioned in view of ancient methods for extracting fibre from vegetable substances—is an apparatus which carries out the ancient idea, and although the apparatus devised for the purpose may have features which entitle it to the claim of originality, the general principle of the process is old and well established. In this instance the machine is made with a series of beaters, whose alternate action upon the material disintegrates the fibres, a cushioned bed serving to break the force of the blows and thus preventing injury to the beaters. Other means are provided for carrying and changing the position of the substances acted upon. It will be strange if the beating-engine, which for so long a time has served the purposes of the paper manufacturer and which displaced the old system of stamps, should be superseded by the old-time methods and apparatus improved in the light of modern experience. It may be, but we doubt if this change will be effected. The beating-engine has an important duty to perform, and its recent improvements in connection with its adaptability to the uses of paper making are hard to overcome.

Watermarks.

BY DANDY.

"Uneasy lies the head which wears a crown." Having in mind the one, two, three order in which the business knock-downs of the past week have occurred, one might paraphrase the quotation and substitute for the last five monosyllables the words "man who owns a paper mill."

The "I-told-you-so" man is about again. He has certainly had a chance this week to toot his horn, and so far as I can hear he has taken it.

The West seems to be establishing a reputation nowadays, and failures out there have been following each other at a somewhat rapid rate.

Some of them may have been due to the fact that business was not transacted on a proper basis. Prices may have been "cut" in order to secure trade and to get it away from someone else, without regard to whether there was any profit in it.

This is a poor foundation to work on, and when anyone does it he must sooner or later come to grief.

The mercury has gone up again, and there is more inducement to "remarks" than "water-marks," but for all that some of the latter will have to be produced.

The stainers of wall-paper are putting the knife in up to the hilt, I should judge, and are giving their customers very low prices. For instance, "color bronzes," which last year, under the rules of the "pool," were sold at thirty cents, are this year offered as low as ten cents. How's that for a reduce!

There seems to be a fight against the jobbers, for one stainer is said to have twenty-seven men on the road who are selling to retailers and are letting the jobbers severely alone.

There may be a heap of fun in this, but I fear that the profits will be very small. Maybe it is being done to squeeze the jobber and the small manufacturer out of business.

It is announced that the *World* contract is to be awarded during the coming week.

Last year there were twenty-three competitors. This year there are only nineteen. Eighteen samples were submitted, two being from one mill, while the two present contractors did not, of course, need to submit any.

Somebody has been figuring up on profits and wages, and one—he beats the lightning calculator—says that the profits of paper manufacturers for a period of years up to and including 1880 were 142 per cent. This, I believe, was part of a calculation on capital and labor.

I suppose that the profits of the paper manufacturers since 1880 have gone so high as to defy all of the calculators' efforts at ciphering. I hope no one will ask me: How high is that? or how is that for high? I want to rest or become a paper manufacturer.

It is suggested that paper can be used for clarifying beer. In this part of the country the beer doesn't stand long enough to make use of the paper.

The person who makes this suggestion says that the paper ought to be impregnated with a little tannin and ichtyocol, whatever that may be. It is, I suppose, needless to say that the individual who talks this way is a German. No one else would think of holding on to his beer long enough to run it through a piece of paper dosed with sole-leather preservative and the other what you may call it. He makes me tired.

By the way, I learn that the strawboard mill which has been built in England was originally intended as a sort of chemical factory to obtain sulphate of ammonia from stable manure by expelling the ammoniacal gas, fixing it with vitriol and then producing the crystallized sulphate of ammonia.

The strawboard, it seems, was to be only a by-product. According to information lately received the strawboard business is a success and the other job is given up.

It would seem also that that mill foundation of tons upon tons of steel rails is rather mythical. Well, well. It doesn't seem as if George Washington has sufficiently impressed his lessons upon at least one Britisher.

Outside of the failures above adverted to, I don't find anything very stirring in trade circles. I have no doubt that many will agree with me that these are stirring enough, and will be gladly excused from anything more of the same sort. Hoping that we have had the last of such excitements for a little while to come, I will await the events of the next se'nnight.

Trade Talks.

John L. Taylor, New York—Yes, I had a very pleasant trip to the other side, especially in Scotland, where we drove through the Highlands, stopping at such inns as we might reach at nightfall. By the way, the nights there are remarkably clear, and you could read a paper at half-past 10 in the evening by the moonlight. I met R. M. Fairfield in Dundee. He is with a party of ten others, mostly from Holyoke. Bagging is in short supply on the other side. The cotton mills have shut down to half time owing to overproduction, and fully a month and a half's supply of bagging has been taken out of the market. The paper mills are using more rag stock of late, and have been discarding wood pulp to some extent. To such an extent has this been done that it has affected the market, and mills there are paying more for rags than I can lay them down here for, without adding any profit at all.

Communications.

That Boiling Question.

THE GIRGAUM PAPER MILLS,
BOMBAY, India, July 4, 1887.

To the Editor of The Journal:

In THE PAPER TRADE JOURNAL of May 14 last I see a communication from "Tyro" under the heading of "A Boiling Question," asking the readers of your journal to inform him which would be the most economical plan—to use a high-pressure engine and utilize the exhaust steam in the open tubs for boiling, or to boil the tubs with live steam and run the engine low pressure, with an independent condenser and pump.

I have tried this, and give my experience for the information of "Tyro," as well as for those who wish to know it.

I have been in charge of this mill (the Girgaum Paper Mills, Bombay) for the last eighteen years, and have worked them by a non-condensing steam-engine, using the exhaust in the open tubs (open vomiting rag boilers) for boiling all our stock of rags, straw, gunny, waste-papers, &c.

Two years ago I was advised to change the steam-engine, and accordingly I erected and started a high-pressure condensing steam-engine, giving live steam for the tubs. After working this engine condensing ("Tyro" calls it low pressure) for one month, I found that the consumption of coal was more by about 10 to 12 per cent. than when we had the old engine (non-condensing) working, and the exhaust used for the tubs. I was surprised to find this state of things. I was expecting a great saving in the consumption of coal by working the engine condensing. I then thought of using the exhaust as before for the tubs, and so disconnected the condenser and the air-pump and worked the engine non-condensing ("Tyro" calls it high pressure). From the very first day a reduction in the consumption of coal was noticed, and at the end of a month it was found that the consumption of coal was considerably less than that of the previous month, when the engine was working condensing and live steam was used for open tubs. Since then the mill has been worked with a non-condensing engine and the exhaust used for the tubs, thus proving that it is more economical to work the engine non-condensing, using the exhaust for the tubs, than giving live steam and working the engine condensing.

BÁBÁJI CASSINATHJE,
Manager the Girgaum Paper Mills.

In Town.

E. R. Solliday, Lambertville, N. J.; T. S. Safford, Camden, N. J.; Thomas Duncan, Hartford, Conn.; A. D. Remington, Watertown, N. Y.; J. P. Rich, St. Albans, Vt.

Obituary.

Oliver M. Adams, newsdealer, &c., Milford, Mass., is dead.

C. M. Eames, bookseller and stationer, Fort Scott, Kan., is dead.

Changes, Removals and New Firms.

M. C. Harris, printer, San Bernardino, Cal., has sold out.

M. Van Ogle, publisher of the *Enterprise*, Anderson, Cal., has sold out.

C. R. McKenny, publisher of the *Sentinel*, Lake City, Minn., has sold out.

Westerfield Brothers, publishers of the *Oregon Register*, Lafayette, Ore., have sold out.

A. H. Davidson, publisher of the *Lyon County Reporter*, Rock Rapids, Ia., has sold out.

Stephens & Rogner, dealers in wall-paper, &c., Omaha, Neb., have dissolved partnership.

Henry Garn, publisher, Grand Island, Neb., has been succeeded by Garn & Hoffman.

Peckham & Godfrey, publishers of the *Herald*, Freeport, Mich., have dissolved partnership.

Skinner & Weerich, publishers of the *Independent*, Massillon, Ohio, have dissolved partnership.

L. S. Punderson, lithographer, New Haven, Conn., has been succeeded by L. S. Punderson & Son.

Whitaker & Shriver, dealers in books and stationery, Oskaloosa, Ia., have dissolved partnership.

J. B. Streeter & Son, paper manufacturers, Allegan, Mich., have been succeeded by Peck, Streeter & Co.

Joseph Levy & Brother, stationers, New Orleans, La., have been succeeded by Levy Brothers & Simon.

The Sheahan-Schultz Lithographic and Printing Company, Boston, Mass., has been dissolved. It was not incorporated.

Curtis & Spade, dealers in books, stationery, &c., Knoxville, Ia., have dissolved partnership. The business will be continued by H. Spade.

Failures.

A. W. Magill, dealer in books and stationery, Clearwater, Kan., has made an assignment.

Baird & Dillon, dealers in subscription books, Chicago, Ill., have made an assignment to Francis E. Muse. Execution was issued against them for $26,000.

The Kentucky Lithographing Company, Louisville, Ky., assigned on August 9. Liabilities, $20,000, covered by assets. The failure was precipitated by the assignment of the W. O. Tyler Paper Company, of Chicago.

W. T. Randall, paper manufacturer, Rockton, Ill., has confessed judgment and his mills are in the hands of the sheriff. The failure of the W. O. Tyler Paper Company, Chicago, is said to have forced his insolvency. The liabilities and assets have not yet been stated.

The *Gazette* Publishing Company and *Argus* Printing and Publishing Company, Louisville, Ky., have made an assignment. Charles H. Smith and Charles Francis are the active men in both concerns. The *Gazette* Publishing Company was incorporated in 1881, with a capital of $20,000. The *Argus* Printing and Publishing Company has a capital paid in of $15,000.

John Hey & Co., wholesale rag dealers and paper manufacturers, Philadelphia, Pa., are alleged to have failed, and their indebtedness for merchandise is estimated at $26,000; and further that the cause of the failure is due to losses incurred in running the firm's paper mill at Valley Forge, which, together with their store in Philadelphia, is reported to be in the hands of the sheriff. The firm was formerly rated at between $40,000 and $45,000.

A mortgage held by the W. O. Tyler Paper Company, Chicago, on the paper mill at Plainwell, Mich., owned by B. F. Lyon & Son, paper dealers of Kalamazoo, was recorded on Monday, and Lyon & Son suspended. They are liable as indorsers on the paper of the W. O. Tyler Paper Company for $40,000 and other debts of $20,000. Their assets beside mill property are nominal. The mill is only sufficient to secure the mortgage; the direct liabilities for stock and bank loans aggregate $20,000, of which $6,000 is held by the Kalamazoo First National Bank. Over $5,000 of the W. O. Tyler Paper Company's paper is indorsed by Lyon & Son and held by Detroit banks, the balance in Chicago banks.

The schedules in the assignment of Orlando B. Hastings, doing business as Hastings & Todd, at 26 Beekman street, were filed on Tuesday. They show direct liabilities, $122,094.85; contingent liabilities, $110,275.86; a total of $232,370.71. The nominal assets are $113,448.37 and the actual assets $34,118.20. The creditors whose claims exceed $100 are as follows: Edison Electric Light Company, $105.98; M. H. Lathrop, $185.22; Whiting Paper Company, $167.76; Linder, Eddy & Krauss, $107.76; Market National Bank (overdrawn account), $351.84; J. H. Adamson, $763.83; A. Schinnagel, $420; Doty & McFarlan, $119; East Hartford Manufacturing Company, $512.04; Holyoke Paper and Card Company, $423.93; White & Wells, $230; Beebe & Holbrook, $1,388.77; Champion Card and Paper Company, $6,153.02;

A. M. Collins Manufacturing Company, $13,537.62; Benton Brothers, $823.20; Standard Card and Paper Company, $887.17; Hampshire Paper Company, $7,167.57; Nashua Card and Glazed Paper Company, $6,575.84; New England Card and Paper Company, $2,094.77; C. J. Reshower, $970.23; Parsons Paper Company, $896.40; Riverside Paper Company, $6,787.74; G. W. Wheelwright Paper Company, $2,758.46; Saranac Silk Mills, $439.38; Warren Manufacturing Company, $1,357.96; S. D. Warren & Co., $7,760.12; Phillip Schnell, $549.07; Rochester Paper Company, $5,322.03; Alfred M. Collins, $2,311.62; F. C. Lounsbury, $1,910.76; A. S. Barnes, $10,000; James H. Thorp, $2,000; James H. Thorp & Co., $5,000. Sundry notes, aggregating $32,768.22, were notes made by Hastings & Todd to the order of the Hurlbut Paper Company, by them indorsed and discounted or sold, and the proceeds given by the Hurlbut Paper Company to Hastings & Todd. Present holders are unknown. The contingent liabilities are divided between the Market National Bank, F. C. Lounsbury and James H. Thorp & Co. In the assets are noted 230 shares of stock of the Western Cardboard Company, of a par value of $23,000. Of this stock $20,000 was pledged for loans before the insolvency of the debtor, while the rest was attached by creditors.

The W. O. Tyler Paper Company, doing business at 169 Adams street, Chicago, failed on Monday, with liabilities estimated at $35,000. The nominal assets are reported to about equal the liabilities, but a large proportion of the assets are said to consist of book debts and doubtful paper, and it is thought that the creditors will get fifty to sixty cents on the dollar. The only local creditor, as far as is known, is the Union National Bank, with which the company had its account, and the action of the bank in entering up a confession of judgment for $38,497 precipitated matters and caused the firm to make an assignment. The assignee is James L. Rubel, treasurer of the company and one of the chief stockholders. The W. O. Tyler Paper Company has been in business since January, 1885. Its organizers were Warren O. Tyler, Frank P. Tyler and James L. Rubel. William Whiting, of Holyoke, Mass., president of the Whiting Paper Company, also took stock in the company when it was organized. Mr. Whiting has drawn out, but his firm is a creditor to the amount of $45,000. Prior to the organization of the corporation the two Tylers had been in the employ of the J. W. Butler Paper Company, and were known in the trade as popular, successful and enterprising business men. W. O. Tyler had been with the J. W. Butler Paper Company a great many years and was the practical manager of its business. Mr. Rubel was connected with the firm of Bremaker, Moore & Co., Louisville. The capital stock of the Tyler Company was $100,000, fully paid up. How much of this was paid by Mr. Whiting and others, or how much Mr. Whiting subsequently drew out, cannot at present be ascertained. The company started out with $100,000 to its credit in the Union National Bank and struck out at once for a big trade, and for the first six months or more cut prices so close that few if any of its competitors made any money. It soon built up a big trade, its turnover averaging $50,000 to $75,000 a month. Some months ago it borrowed $16,000 from the Union National Bank, and the bank advanced a good deal more on the general collateral of customers' paper. When the Standard Paper Company of Milwaukee failed, W. O. Tyler owned $24,000 worth of stock in that company, and the Tyler firm owned $2,500 worth. Besides this the firm was a creditor of the Standard Company. When the Standard firm failed Eastern creditors of the Tyler firm became uneasy and have been pushing the firm ever since. Some of the Eastern men sent a representative to Chicago, and he demanded security, and the result was that the Union National Bank became frightened and entered up judgment. The firm made an assignment without preferences, naming Mr. Rubel as assignee. The place was closed by a deputy sheriff, and a custodian placed temporarily in possession. The creditors are nearly all Eastern manufacturing firms, the principal being in Holyoke, Mass.; Providence, R. I.; Middletown, Ohio, and New York city. Among the reported creditors of the W. O. Tyler Paper Company are the Nonotuck Paper Company, Massasoit Paper Company, Holyoke National Bank, Whiting Paper Company, Whitmore Manufacturing Company, Union Paper Company, Geo. R. Dickinson Paper Company, Winona Paper Company and Riverside Paper Company, Holyoke, Mass.; Richmond Paper Company, Providence, R. I.; Z. Crane, Jr., & Brother and Carson & Brown Company, Dalton, Mass.; F. H. Richmond & Co., New York; Smith Paper Company, Lee, Mass.; Collins Manufacturing Company, North Wilbraham, Mass.; Parker & Son, New Haven, Conn.; Owen Paper Company, Housatonic, Mass.; Vernon Brothers & Co., Wilkinson Brothers & Co., Augustine Smith & Co., Ph. Hake, Schlister Jute Company, Seymour Paper Company and F. Bredt & Co., New York. W. O. Tyler will be in New York during the coming week, and on Wednesday will meet some of his creditors at the Fifth Avenue Hotel.

SPECIAL NOTICES.

[*Insertions under this heading will be charged 50 cents a line. Payment invariably in advance.*]

P. HART & CO.,
WHOLESALE DEALERS AND PACKERS OF
Rags, Paper Stock, Metals and Rubber,
134 AND 136 JANE STREET NEW YORK.

THOS. BUTLER & CO.,
Rags, Paper Stock, Old Metals, Rubber,
249-253 CAUSEWAY ST., BOSTON, MASS.

CARPENTER & BARTLETT,
Cotton and Woolen Rags, Paper Stock, Old Metals and Rubber,
No. 190 FRONT STREET, HARTFORD, CONN.

MORE & IRVINE,
Rags, Paper Stock, Rubber, &c., &c.,
140 BAXTER STREET, NEW YORK.

PATRICK GARVIN,
Manufacturer and Dealer in Paper and Paper Stock. All grades of Mill Stock specially assorted. All grades of paper made to order.
207 STATE STREET, HARTFORD, CONN.

P. J. McARDLE,
Established 1868.] [Successor to GRAVES & BROWN.
Dealer in Paper Stock, Rubber, Cotton and Woolen Rags, Pig and Scrap Iron and other Metals.
CORNER OF CHURCH AND ARCH STS., ALBANY, N.Y.

JAMES SAVAGE, JR.,
Rags, Paper Stock, Rubber, &c., &c.,
530 TO 538 WEST 38TH ST., NEW YORK.

Market Review.

OFFICE OF THE PAPER TRADE JOURNAL,
FRIDAY, August 12, 1887.

THE MONEY MARKET.—The stock market is dull and uninteresting, although a strong undertone prevailed. In the local money market there was no change, call loans on stocks ruling 4@5 per cent. Mercantile paper was quoted as follows:

	Sixty days.	Four months.
Double-named—		
First-class	6 @ 6½	6 @ 6½
Good	6½@ 7	6½@ 7
Single-named—		
First-class	6 @ 7	6 @ 7
Good	8 @ 9	8 @ 9
Not so well known	9 @10	9 @10

The market for sterling was fairly active. Commercial bills were in only moderate supply, but rates declined, owing both to the buying of some stocks for London account and the making of some sterling loans. Francs were quite weak, owing to an advance of sterling exchange on London. Considerable gold is now on the way from Europe. Posted rates closed at $4.82½ for sixty days' and $4.85 for demand. Rates for actual business were as follows: Sixty days' sight, $4.80¾@4.81; demand, $4.83¾@4.84; cables, $4.84¼@4.84½; commercial, $4.79¼@4.79½. Continental bills were quiet and quoted as follows: Francs, 5.24⅛@5.23¾ and 5.21⅞@5.21¼; reichsmarks, 94½@94⅝ and 94⅞@95; guilders, 40 and 40¼. Government bonds were easier. Reported sales were $10,000, 4's, registered, 1907, at 127⅞; $22,000, 4's, coupon, 1907, at 127¾, and $2,000, do., at 127⅞. Railroad bonds were dull and featureless.

THE PAPER TRADE.—The failure of a Western paper company, which carried down with it two paper mills, a lithographing company and a newspaper, has caused a great deal of talk during this week. While some local houses are represented as creditors, the failures have had no effect on the market, save, perhaps, to cause sellers to look more closely to credits and to use more caution in their dealings. As a rule mills are busy, and orders have come forward in such a way as to make the prompt filling of some of them very inconvenient. Production is spoken for well ahead, and in all lines there is no complaint as to the volume of business, but only as to prices. Manillas are selling well up to prices recently established, and, in fact, with the market for raw material in its present condition they can scarce do otherwise. There is a good demand, and No. 1 Manillas are firm. Book and News are in good demand, but prices do not show any upward tendency, although with a plentiful supply of orders manufacturers are perhaps a trifle independent. Strawboards are in fair movement and are selling up to association prices. Wall-papers are being cut, owing to the break in the combination, and in some cases the reductions are very large. Straw Wrappings are in good demand, but prices are low.

JUTE BUTTS.—The Jute Butts market is very strong. Sales on spot have been 700 bs. paper quality at 2 3-16c.; 1,400 bs. bagging quality at 2¼c. Closing quotations on paper quality were 2¼c. There is nothing doing in futures. The Loch Carron, 9,200 bs. and the L. J. Moore, 2,746 bs., arrived during the week. Both cargoes were sold to consumers before arrival. The August 1 circular of Cabot, Ray & Co., gives the following statistical information: Import to the United States, 1884, 285,749 bs.; 1885, 403,970 bs.; 1886, 408,659 bs. Consumed in the United States, 1884, 282,946 bs.; 1885, 400,573 bs.; 1886, 434,259 bs. Stock on hand New York and Boston, January, 1, 1887, 30,400 bs. Imported since Jauuary, 1887, 277,758 bs.; 1886, 318,926 bs.; 1885, 328,999 bs. Stock August 1, 1887, New York and Boston, 12,720 bs.; 1886, 52,100 bs.; 1885, 63,620 bs. On passage for United States, July 1, 1887, 59,205 bs., and by cable to August 1, 1887, 60,205 bs.; 1886, 75,462 bs.; 1885, 70,407 bs. Visible supply to December 1, four months, 72,925 bs.; 1886, 127,562 bs.; 1885, 317,982 bs. Delivered to consumers past thirty days, 27,595 bs.; 1886, 33,647 bs.; 1885, 11,155 bs. "Five ships have arrived past month, with 27,500 bs., which have all passed into hands of consumers. The stock of Paper Butts on spot is very light, and prices have advanced to 2⅛c. Some business done in new crop for September to January shipments at 1 13-16c. for merchantable quality. Calcutta market holds very firm, and latest cables quote a small advance. Not much doing in bagging qualities, which are held at 2¼@2⅜c. on spot."

WOOD PULP.—Ground Wood is having a very steady call and prices are as before. We quote: Poplar, 1½@1¾c.; Spruce, 1¾@2c. delivered. Foreign grades are quoted ex-dock: 50 per cent. Wet at 1.40@1.45c.; Dry, 1¾c., and Brown Boiled, at 1⅝@1¾c. Imports for the week aggregated 8,138 bales, as follows: Christiania, 3,311 bs.; Hull, 3,634 bs.; Liverpool, 123 bs.; London, 1,070 bs.

WOOD FIBRE.—Domestic mills are busy, and there is a very fair all-round demand, in which foreign grades participate. Association prices are still 3¼c. for Bleached and 3¼c. for Unbleached, although these prices are shaded by outside makers. Foreign grades are quoted: Unbleached Pine, soda process, 3@3.40c.; Bleached, same process, 3¾@4¼c.; Unbleached, sulphite process, 3¾@4c., and Bleached, 4½@6¼c.; Bleached Straw Pulp, 4¾@5¼c.

FOREIGN RAGS AND PAPER STOCK.—There is very little doing in the foreign rag and paper-stock market, and for the most part buyers do not show any disposition to operate to any extent. Transactions are mostly in small lots. We hear some little inquiry for linens, but it is very light, and generally these lines are not moving to any extent. In paper stock there is some demand for shavings, and book shavings hold their prices very well. Imports for the week aggregated 13,148 bales, including 2,610 bs. rags, 471 bs. old papers, 8,138 bs. wood pulp, and 1,929 bs. manillas. Ports of shipment and quantities are: Calcutta, 443 bs. manillas; Christiania, 3,311 bs. wood pulp; Dundee, 11 bs. rags, 58 bs. old papers, 266 bs. manillas; Hull, 453 bs. rags, 25 bs. old papers, 3,634 bs. wood pulp, 458 bs. manillas; Leghorn, 500 bs. rags; Liverpool, 1,425 bs. rags, 271 bs. old papers, 123 bs. wood pulp, 570 bs. manillas; London, 221 bs. rags, 67 bs. old papers, 1,070 bs. wood pulp and 192 bs. manillas; Rotterdam, 50 bs. old papers.

DOMESTIC RAGS.—There is a very fair movement in the Domestic Rag market. No. 1 City Whites are selling at 3.70@3¾c.; Soiled Whites, 2.70@2¾c., and No. 2 City Whites, 1.62½@1¾c.

BAGGING, &c.—Gunny Bagging retains its strong position and is higher, the general quotation for No. 1 Manchester being 2c., with offers of 1 15-16c. declined. There is nothing on spot, and with afloats sold and collections not over large on the other side, importers who have any to offer are very firm in their views. Jute Rope and Threads are well sold ahead. Manilla Rope is unchanged. Manilla imports for the week aggregated 1,929 bales, ports of shipment and quantities being; Calcutta, 443 bs.; Dundee, 266 bs.; Hull, 458 bs.; Liverpool, 570 bs.; London, 192 bs.

OLD PAPERS.—Beyond a steady trade, with No. 1 Manillas and Soft Shavings leading in demand, there is nothing specially new. We quote: No. 1 Hard White Shavings, 3½c.; No. 1 Soft White do., 2½c.; Old Ledgers, 2¼c.; Solid Printed Books, 1⅝@1¾c.; Mixed Shavings, 1¾c.; No. 1 Manillas, 1.60@1.65c.; Light Book Stock, 1c.; Folded News 1¼@1.30c.; Commons, 60@65c.; Bogus Manillas, 60@90c.; Strawboard Clippings, 60@65c.; Binders' do., 65c.

STRAW.—There is a fair trade and prices are steady. We quote: No. 1 Rye at 55@60c.; short Rye at 45@50c.; Oat at 35@40c.

ROSINS.—The market is steady and unchanged. We quote in lots from the yard: Common to Good Strained, $1.27½@1.35; E, $1.45; F, $1.55@1.57½; G, $1.65@1.67½; H, $1.75; I, $1.80@1.85; K, $2; M, $2.10; N, $2.15, and W G, $2.50@2.55.

CHEMICALS.—There has been more trading in a quiet way this week, but it has not attained sufficient proportions to make the market active. Bleach is very firm and rather scarce for prompt delivery. The demand is mostly of a jobbing character. Brunner & Co. say of the Liverpool market that trade was dull, but as there was little offering prices were fairly well maintained. For prompt delivery £7 17s. 6d. was nearest value, and £17 15s. has been paid on American account for a contract extending over the next six months. High-test Caustic Soda is in moderate demand. Large buyers do not manifest any interest in the market. Prices are steady. Prices for Caustic Soda Ash, 48 per cent., are steady. The demand on spot is light, although it is comparatively better than for shipments. Strong reports from abroad keep the English Sal Soda market strong, and prices rule higher. Sales and quotations are: 800 cks. Bleaching Powders, spot and to arrive, at 2½c.; 500 tons Soda Ash, 48 per cent., spot and to arrive, 1.30c.; 200 tons Sal Soda, spot at 1¼c.; 200 bbls. Lump Alum at 1.70c.; 200 bbls. Ground do. at 1.80c.; 200 bbls. Pearl Alum, 2⅜c.; 500 bbls. Natrona Porous at 2½c.; 300 tons Alkali at 1.20c.; 25 cks. Yellow Prussiate at 18½c.; 400 drums, 70 per cent., Caustic Soda at 2.45c.; 50 cks. Anti-chlorine at 2½c.; 20 cks. Brown Sugar of Lead at 6c.; 100 tons Alumnious Cake at 1⅜c.

CHINA CLAY.—The finer grades are in ordinary demand, but medium and low grades are not inquired for, and are apparently neglected. Prices are unchanged, and we continue to quote nominally $13@18, according to grade, brand and quantity. Southern has been in moderate request only, but the demand seems equal to the supply. The quotation remains $11.

COAL.—Anthracite quotations at New York loading points are as follows:

	Broken.	Egg.	Stove.	Nut.	Pea.
Free-burning White Ash	$3.65	$3.80	$4.25	$4.10	$3.00
Pittston	3.60	3.75	4.15	4.15	3.20
Reading Hard White Ash	3.85	4.00	4.25	3.85	2.75
Honey Brook	4.25	4.15	4.25	4.10	....
Plymouth Red Ash	3.85	3.95	4.60	4.30	....
Franklin Lykens Valley	4.45	5.00	5.45	4.85	....
D. & H. at Weehawken	3.65	3.80	4.25	4.10	3.25

Saward's *Coal Trade Journal* says: "The anthracite coal trade continues in good shape, and it is the opinion among conservative producers, jobbers and dealers that the volume of business will at an early date show a large and steady increase. The tonnage laid out for this month is 3,000,000 tons, but it will actually be something more, for there has not been a month this year where the supposed requirements were closely adhered to; the output is largely in excess of any year, and yet thus early in the season one hears of inability to promptly forward supplies. What tonnage may be on hand at any of the distributing points will come in at a time when it is urgently needed, and of course there will be profit thereon to those who were bold enough early in the year to carry the coal forward. The mines are being run on full time as a rule. Shipments of coal by lake have not been heavy the past week; vessels are not plentiful, and with some shippers there is no coal; the clearances at Buffalo since our last are light, and confined to the principal points on Lakes Michigan and Superior. Chicago reports a decided firmness, and the volume of business is steadily increasing; the lack of transportation facilities is already becoming a factor in the question of securing a supply of coal. Boston and the eastward report a fair stock as in hand or purchased, and still hold the opinion that prices are high enough. Locally the trade may be reported as in somewhat better shape than it was just before the first of August, but there is room for improvement before it can be said to be up to the condition of other points, either on the question of activity or firmness of price."

ROBERTS & COOK,
MFRS., MFRS' AGENTS AND WHOLESALE DEALERS IN
Folding Clothing, Band and Nail Boxes,
— AND —
MILLINERY AND SHIRT BAGS FOR THE TRADE.
Paper, Pulp and Straw Board Makers should try our
EXCELSIOR BALE CORD.
As Manufacturers' Agents we solicit correspondence.
No. 25 PARK PLACE, NEW YORK.

EDWIN BUTTERWORTH & CO.
MANCHESTER, ENGLAND,
PACKERS OF ALL KINDS OF
Paper Stock, Cotton Waste and Buffalo Sizing,
(P) 83 GUNNY BAGGING, &c.
OFFICE IN NEW YORK:
Tract House, 150 Nassau Street, near Tribune Office.
JAMES PIRNIE, Manager.

PERKINS, GOODWIN & CO.,
66 & 68 Duane St.,
NEW YORK.

PRICES CURRENT.

NEW YORK MARKET.

Paper Market.

DEALERS SELLING PRICES.

Ledger and Record	$0.18 @ $0.24
Flat Caps, superfines	14 @ 18
Flat Caps, fines	13 @ 15
Flat Caps, engine-sized	9 @ 11
Blotting, American	8½@ 17
Blotting, English	19 @ —
Book, super-sized and calendered	7 @ 8½
Book, super-sized and tinted	7 @ 8
Book, extra machine finish	7 @ 7¼
Book, machine finish, low grade	6½@ 7
Book, No. 1, shavings & imperfections	6½@ 7
News, No. 1	5 @ 5½
News, rag and wood	4¾@ 5¼
News, straw	5¼@ 5½
Poster	5½@ 6¾
Hanging, superfine, No. 1	7 @ 8
Hanging, superfine, No. 2	7 @ 7½
Hanging, machine satin	6 @ 6¾
Hanging, white blank, No. 1	5½@ 6
Hanging, curtain	5 @ 5½
Hanging, buff	4 @ —
Hanging, brown	3½@ 3¾
Colored papers, double medium	7½@ 8½
Colored papers, glazed medium	8½@ 10½
Colored papers, tobacco	8½@ 9½
Colored papers, tissues, 20 x 30, ℔ ream	1.10 @ 1.35
Tissues, black, 20 x 30, ℔ ream	1.40 @ 1.50
White tissue, 20 x 30, ℔ ream	85 @ 1.00
White tissue, 24 x 36, ℔ ream	1.30 @ 1.50
Manillas, Flour-sack, cream	10½@ 12
Manillas, Flour-sack, drab	9½@ 11
Manillas, Rope, unbleached No. 1	9½@ 11
Manillas, Rope, unbleached No. 2	7½@ 9¾
Manillas, No. 1, light weight	7 @ 8
Manillas, No. 1, heavy weight	6½@ 7
Manillas, No. 2	5 @ 6
Manillas, Bogus	2½@ 3
Wrapping Parchment	26 @ 30
Tissue Manillas, full count, weight and size, 24 x 36, other sizes in proportion	75 @ 80
Hardware, light colored, No. 1	9 @ 10
Hardware, No. 1, glazed, tarred	7 @ 8
Hardware, No. 1, glazed	5 @ 6
Binders' Boards, ℔ ton, No. 1	70.00 @ 90.00
Binders' Boards, ℔ ton, No. 2	40.00 @ 50.00
Straw Boards, air-dried, No. 1, ℔ ton	45.00 @ —
Straw Boards, steam-dried, No. 1, ℔ ton	42.50 @ —
Straw Boards, steam-dried, No. 2, ℔ ton	40.00 @ —
Straw Boards, steam-dried, No. 3, State, ℔ ton	37.50 @ —
Straw Boards, air-dried, Penn, ℔ ton	35.00 @ —
Straw Boards, air-dried, State, ℔ ton	37.50 @ 40.00
Straw Wrapping, basis, 15 x 20, 15⅝ lbs. 20 sheets—			
36 x 40, from 38 to 42 lbs. ℔ rm	— @ 95
30 x 40, from 30 to 34 lbs. ℔ rm	— @ 76
24 x 36, from 24 to 26 lbs. ℔ rm	70 @ —
22 x 32, from 24 to 26 lbs. ℔ rm	— @ 50
20 x 30, from 14 to 17 lbs. ℔ rm	36 @ —
16 x 22, from 12 to 13 lbs. ℔ rm	— @ 30
18 x 28	— @ 32
15 x 20, 10 lbs. ℔ rm	— @ 23
15 x 20, from 7 to 8½ lbs. ℔ rm	— @ 19
14 x 18	— @ 16
12 x 16	— @ 14
11 x 15	— @ 12
Straw Wrapping, ℔ lb., heavy weight	1¾ @ 2
Straw Wrapping, ℔ lb., light weight	2¼@ 2½
Cigarette Straw Tissue, per case of 100 boxes, 50 books to the box, 200 sheets to the book	30.00 @ 35.00
Tea Papers, 16-sheet quires—			
12 x 18	22 @ 23
14 x 20	28 @ 30
Card Middles, ground wood	5¾@ 6¼
Card Middles, long fibre wood	8¼@ 9¾
Card Middles, rag and wood	6 @ 7
Wood Fibre, bleached	3¾@ —
Wood Fibre, unbleached	1¾@ —

English Rags, &c.

New Cuttings, cotton	5¾@ 5⅞
London Fines, cotton	3¾@ 4
Outshots, cotton	2¾@ 3
Seconds	1½@ 1.65
Thirds	1¾@ 1¾
New Print Tabs	2¾@ 3
Checks and Blues	2½@ 2¾
Light Prints	1¾@ 2
Light Fustians	2 @ 2¼
Dark Fustians	1¾@ 1⅞
Black Calicoes	1½@ 1¾
First Canvas Linen	3¾@ 4
Second Canvas Linen	3 @ —
Gunny Bagging, No. 1	1⅝@1 13-16
Gunny Bagging, No. 2	1½@ 1¾
Burlaps Bagging, No. 1	1½@ 1.80
Rope, Manilla	2¾@ —
Rope, Manilla, tarred	— @ 2
Jute Threads	2 @ 2¼
Clean Jute Ropes	2 @ 2½
Mixed Rope	1½@ 1¾
Flax Tow	1½@ 1¾

English Old Papers and Shavings.

Hard Shavings, No. 1	3 @ —
Soft Shavings, No. 1	2¾@ 2¾
White and Colored Shavings, No. 1	1½@ 2
White and Colored Shavings, No. 2	1¼@ —
Cream Post Shavings	2¾@ 2.81¼
Paper-Collar Cuttings	3¼@ 3½
Briefs and Letters	2 @ 2¼
Newspapers and Pamphlets, extra	1½@ —
Old Newspapers	1 @ 1¼
Broken News and Letters	¾@ 1
Old Blank-Books	2¼@ 2½
Old Printed Books	2 @ 2½
White and Buff Railway Sheets	1½@ 2¼

Hamburg Rags, &c.

N S C, New Shirt Cuttings	5½@ 5¾
S P F F F, No. 1 Linens	— @ 4¾
S P F F, No. 2 Linens	— @ 4½
S P F, No. 3 Linens	— @ 3¾
F G, No. 4 Linens	2¾@ 3
F F, No. 5 Linens	2¾@ 2¾
Extra Fine Blue Linen, light color	3 @ 3¼
L F B, Blue Linens	2¾@ 3
Gunny Bagging, No. 1	1.45 @ 1.55
Gunny Bagging, No. 2	1¾@ —
C S P F F F, No. 1 Cottons	3¾@ 4
C S P F F, No. 2 Cottons	3¼@ 3½
C S P F, No. 3 Cottons	2¾@ 2¾
C C C, Colored Cottons	1¾@ 1¾
C F X, Low grade Cottons	1¾@ 1¾
Extra Fine Blue Cottons	1¾@ 2

Leghorn Rags.

P P, No. 1 White Linens	5¾@ 5¾
S S, No. 2 White Linens	4¼@ 4¾
T T, No. 3 White Linens	3¼@ 3¾
R R, Linen Stripes	3¼@ 3¾
P C, No. 1 White Cottons	4¼@ —
S C, No. 2 White Cottons	3 @ 3¼
T C, No. 3 White Cottons	2½@ —
R C, Cotton Stripes	2¼@ —
C C, Colored Cottons	2 @ —

Alexandria Rags.

Whites	1¾@ —
Blues	1¾@ —
Colors	1¾@ —

Smyrna Rags.

Whites and Blues	1½@ 1¾
Reds	1½@ 1¾
Mixed	1½@ 1¾

Japanese Rags.

Whites, ordinary	— @ 1¾
Blues, ordinary	— @ 1¾
Blues, selected	— @ 1¾

Chemicals, Coloring Materials, &c.

Alkali, 58 ℔ cent	1.20 @ —
Alum, lump	— @ 1.70
Alum, ground	— @ 1.80
Alum, Diamond	— @ 2¼
Alum, pearl	2¼@ —
Alum, porous	2¼@ —
Aluminous Cake	— @ 1¾
Anti-Chlorine	— @ 2½
Bi-Chromate Potash, American	— @ 10¾
Bleaching Powders, spot and to arrive	— @ 1¾
Caustic Soda, 70 ℔ cent	— @ 2.45
Clay, China, English, ℔ ton	12.50 @ 16.50
Clay, China, "Star"	12.50 @ —
Clay, South Carolina, ℔ ton	12.00 @ 13.00
Clay, Terra Alba, French, ℔ ton	70 @ 95
Clay, Terra Alba, American, No. 1	75 @ 80
Corn Starch	— @ 2½
Copperas, American	— @ 70
Extract Logwood	8¼@ —
Mineral Fibrous Pulp	25.00 @ —
Orange Mineral	— @ 8¼
Potato Starch	— @ 3¾
Prussian Blue, dry	28 @ 45
Prussiate Potash, American	— @ 18¼
Rosins, common to good strained, ℔ bbl.	1.27½@ 1.35
Rosins, E, ℔ bbl	1.45 @ —
Rosins, F, ℔ bbl	1.55 @ 1.57½
Rosins, G, ℔ bbl	1.65 @ 1.67½
Rosins, H, ℔ bbl	— @ 1.75
Rosins, I, ℔ bbl	1.80 @ 1.85
Rosins, K, ℔ bbl	2 @ —
Rosins, M, ℔ bbl	— @ 2.10
Rosins, N, ℔ bbl	— @ 2.15
Rosins, W G, ℔ bbl	2.50 @ 2.55
Sal Soda, English	— @ 1¼
Soda Ash, caustic, 48 ℔ cent	— @ 1.30
Soluble Blue	50 @ 55
Spanish Brown	¾@ 1
Sugar Lead, white	— @ 12¼
Sugar Lead, brown	— @ 6
Sulphate of Alumina	— @ 2½
Sulphuric Acid, 66 ℔ cent	1½@ 1¾
Ultramarine, blue, German	— @ 17
Venetian Red	— @ 1.45
Vitriol, blue	4½@ 5
Yellow Ochre, Rochelle	1.37½@ 1.45

BOSTON MARKET.

Paper Stock.

Mill Assorted Whites	4¾@ —
Cotton Canvas	4½@ 4¾
Cotton Canvas, No. 2	2¾@ 3
Gunny Bagging	1¾@ 1⅞
Gunny Bagging, No. 2	— @ —
Shivey Bagging	1½@ —
Waste Woolens	¾@ 1
Jute Butts	2¼@ —
White Collar Cuttings	2¾@ 3
White Envelope Cuttings	3¼@ 3⅜

Hard White Shavings, No. 1	3 @	3¼
Soft White Shavings, No. 1	2½@	2¾
White Shirt Cuttings	5½@	—
Country White Rags	4½@	4⅝
Country Mixed Rags	1½@	2
City Whites, No. 2	3½@	3⅝
Seconds, Country	3 @	3¼
White Shavings, No. 2	1½@	2
Mixed Shavings (¾ white)	1½@	1¾
Imperfections	1 @	1⅛
Book Stocks	1¾@	1⅞
Light Prints	1 @	1⅛
Manilla Papers, old	2½@	2¾
Hardware and Manillas	$10.00@	—
Straw Board Cuttings	$12.00@	15.00
Linen Canvas	3½@	3⅝
Colors	1 @	1⅛
Manilla Rope	2½@	2¾
Binders' or Tar Board Cuttings	1¾@	1⅞
Common Papers	½@	¾
Oakum Junk	2¾@	3
Hemp Rope, Tarred	2½@	—
Rigging	3½@	4
New Papers.		
Superfine Book	7 @	8
Fine Book	6 @	7
News, rag and wood	5½@	6
News, No. 1, all rag	6 @	6½
Manilla, Cream Rope	9½@	10
Manilla, No. 1, Rope	8½@	9
Manilla, Extra Jute	6 @	6½
Manilla, Jute and Gunny	5¾@	6
Manilla, No. 2	5 @	5⅜
Manilla, Bogus	4 @	5
Hardware, No. 1, tarred	7½@	8½
Hardware, No. 2	7 @	8
Hardware, red	5 @	6
Straw Boards, air-dried, ℔ ton	50.00 @	60.00
Straw Boards, steam-dried, ℔ ton	30.00 @	40.00
Straw Wrapping, heavy	1.90 @	2¼
Straw Wrapping, light	2½@	2¾
Binders' Boards, ℔ ton	33.00 @	60.00
Leather Board, Common, ℔ lb	3 @	4
Leather Board, counter	5 @	8
Leather Board, extra	8 @	10
Tar Boards, ℔ ton	100.00@	110.00
English Rags, &c.		
Fines	3½@	3¾
Outshots, cotton	3 @	3⅛
Seconds	1½@	1¾
Seconds, extra	1¾@	1⅞
Thirds	1 @	1⅛
New Print Tabs	2½@	2¾
Checks and Blues	2 @	2⅛
Light Prints	1¾@	1⅞
Light Fustians	1¾@	1⅞
Dark Fustians	1½@	1⅝
Black Calicoes	1½@	1¾
Gunny Bagging, No. 1	1¾@	1⅞
Gunny Bagging, No. 2	1¾@	1⅝
Mixed Bagging	1½@	1¾
Rope Manilla	2½@	2¾
Rope Manilla, tarred	2½@	—
Jute Ropes	2½@	2¾
Jute Threads	2½@	2¾
English Old Papers and Shavings.		
Soft Shavings, No. 1	2¾@	2⅝
White and Colored Shavings, No. 1	1¾@	1⅞
White and Colored Shavings, No. 2	1½@	1⅝
Cream Post Shavings	2¾@	2⅞
Paper Collar Cuttings	2½@	2⅝
Ledgers	— @	2¼
Books and Pamphlets, extra	1¾@	1⅞
Old Newspapers and Pamphlets	1¾@	1⅞
Broken News and Letters	1 @	1¼
New Books, solid folios	— @	2
Old Blank-Books	— @	2½
Old Printed Books	2½@	2¾
Buff Railway Sheets	1½@	1⅝
Railway Tickets	1¼@	1⅜
Leghorn Rags.		
P P, No. 1 Linens	— @	—
S S, No. 2 Linens	— @	—
T T, No. 3 Linens	— @	—
P, No. 1 Cottons	— @	—
S, No. 2 Cottons	— @	—
T, No. 3 Cottons	— @	—
Alexandria Rags.		
Whites	1¾@	1¾
Blues	1½@	1¾
Colors	1½@	1⅞
Smyrna Rags.		
Whites	1½@	1⅝
Blues	1½@	1⅝
Reds	1½@	1¾
Constantinople Rags.		
Whites, No. 1	— @	—
Whites, No. 2	— @	—
Whites, No. 3	— @	—
Blues	— @	—
Reds	— @	—
Chemicals.		
Alkali, 58 ℔ cent	1.20 @	1¼
Alkali, 36 ℔ cent	1.25 @	1⅜
Aluminous Cake, currency	1½@	1⅝
Alum, American ground	2 @	2½
Alum, American lump	1¾@	2
Anti-Chlorine	3 @	3¼
Bi-Chromate Potash, American	10½@	—
Bleaching Powders	1.80 @	1.85
Blackley Blue	2.00 @	3.00
Caustic Soda, 70 ℔ cent. (for 60 ℔ cent.)	2.40 @	2.42½
Clay, English, ℔ ton	13.50 @	18
Clay, American, ℔ ton	13.00 @	14.00
Copperas, American, ℔ lb	¾@	1
Extract Logwood	7½@	8¼
Lime, Rockland, ℔ bbl	95 @	1.00
Prussian Blue, ℔ lb	50 @	60
Prussiate Potash, American, yellow	— @	18½
Prussiate Potash, red	51 @	52
Rosin, common strained, ℔ bbl	1.45 @	1.50
Rosin, No. 2	1.50 @	1.60
Rosin, No. 1	1.65 @	1.80
Rosin, pale	2.50 @	3.00
Rosin, extra pale	3.30 @	3.70
Sal Soda, English, ℔ lb	92½@	95
Soda Ash, 48 ℔ cent. cent. caustic	1¼@	1.30
Soda Ash, 48 ℔ cent. carbonated	1¼@	1.30
Soluble Blue	55 @	65
Sugar Lead, white	11½@	11¾
Sugar Lead, brown	6¾@	7
Sulphuric Acid, 60°	1¾@	1¾
Terra Alba, ℔ ton	15.00 @	20.00
Ultramarine, ℔ lb	16 @	18
Venetian Red, ℔ lb	1¾@	1¾
Vitriol, Blue	4½@	5¼
Yellow Ochre	1¾@	2

CHICAGO MARKET.

Paper Stock.

Wholesale Dealers' Selling Price.

No. 1 whites	3¼@	3⅜
No. 2 whites	3.05 @	3¼
Thirds and blues	1¾@	2¼
Print rags	1½@	1.35
No. 1 book paper	1½@	1.60
No. 2 book paper	1¼@	1⅜
News	¾@	1.10
No. 1 manilla	1½@	1¾
Print papers	60 @	—
Straw papers	40 @	50
White shavings	2¼@	2¾
Mixed shavings	1¾@	1⅜
Paper.		
Plate	13 @	14
Super-Calendered, white and tinted	7 @	9
Fine book, white and tinted	6½@	6½
No. 2 Book	5¾@	6
Colored Glazed Mediums	7½@	8½
Rag News No. 1	5¾@	6
Ordinary Rag News	5 @	5⅜
Straw and Wood News	4½@	5
Bleached Manilla, No. 1	— @	8
Ordinary Manilla	6¼@	6⅜
Bogus Manilla	4 @	4½
Straw Wrapping	1.50@	2½
Hardware Wrapping	2 @	2⅜
Tissue Manilla, 24 × 36, full count	— @	90
Tissue, white, 20 × 30	80 @	90
Tissue, colored	1.00 @	1.10
Tea Papers, 14 × 20	6 @	7
Tea Papers, 13 × 18	6 @	7
Tea Papers, 13 × 16	6½@	7
Strawboards, air-dried, ℔ ton	$40.00 @	45.00
Strawboards, steam-dried, ℔ ton	37.50 @	42.50
Wood Pulp Card middles	6¼@	8

Advertisements.

A PRACTICAL PAPER MAKER IS OPEN to a position as Foreman in a tissue, manilla or an A 1 manilla mill, sack or wrapping. Address TISSUE, care Paper Trade Journal.

WANTED—BY EXPERIENCED MAN, POSITION as Manager or Superintendent of a paper mill running on book and news; is competent to do all buying of stock and the grading of paper, &c. Address L., care Paper Trade Journal.

WANTED—SITUATION AS SUPERINTENDent or Foreman in a paper mill; has had twelve years' experience on manillas, book and news, and colored paper; fully posted in chemical pulp and straw, and can give the most satisfactory testimonials. Address FOREMAN, care Paper Trade Journal.

FOR SALE—ONE SET TWELVE SCREEN Plates (Rice, Barton & Fales make), dimensions, 12 × 42 × ¼, No. 2; in use about one week.
CASCADE WOOD PULP CO.,
Lockport, N. Y.

FOR SALE—WOOD-CHOPPER; DIAMETER, 6¼ feet long; thickness of plate, 3 inches; shaft, 5¼ feet long, 5 inches thick. A chute and journals and knives all complete. Will be sold at bargain. Address
JAMES PETERS & CO., Pittsburgh, Pa.

CALENDERS-CUTTER.

WANTED—A GOOD SECOND-HAND SET OF Calenders, five Rolls, 68 to 72 inch Cutter, with or without Reels. Do for manilla mill. Address with particulars to WM. ANGUS & CO.,
Montreal, Canada.

WANTED, FOREMAN.

One who thoroughly understands the manufacture of No. 2 Manilla and Express Papers. Mill situated in Ohio. Would prefer a man to take a small interest in the business. Rare chance for the right man. Address B., care Paper Trade Journal.

FOR SALE.

Six Cast-Iron Dryers, 28 × 68 inches.
Four Cast-Iron Dryers, 36 × 62 inches.
Ten Knight's Dryers; 16-in. diam., 72-in. face.
Five 7x84 in. Chilled-Iron Calenders.
A Complete 44-inch Straw-board Machine, with thirty-one Dryers, in first-class condition.
For particulars address
THE BLACK & CLAWSON CO., Hamilton, Ohio.

CYLINDER WET MACHINE, 72-in.
80 H.-P. STEAM BOILER.
68-in. FOURDRINIER PAPER MACHINE
And other desirable Machinery cheap.
PLATNER & PORTER MFG. CO., Unionville, Conn.

FOR SALE.

Two Kingsland Engines, with new revolving and side plates; one Rotary Bleach: 4,500 lbs. capacity; one new 56-inch Machine (double cylinders) 48-inch diameter dryers; one double screw Power Press, table five feet by six feet. Write for particulars to
A. T. & T. W. DENISON,
Foot Jos. Campaw Ave., Detroit.

PAPER MILL MACHINERY FOR SALE.

The undersigned have several Beating-Engine Rolls, with new steel bars; also Horne's Elbow Bed-Plates and Plate Boxes; Pulleys and other Paper Mill Machinery for sale at low prices; all in good order. Sent for list of machinery and prices.
T. NEW MANUFACTURING CO.,
32 John Street, New York City.

FOR SALE.
Fourdrinier Paper Machine.

Wire, 72 inches by 32 feet; 12-inch Couch Rolls; 12-inch Press Rolls, bottom roll rubber-covered; six 28-inch Dryers, four copper and two iron; two Stacks of Calenders, one of three 12-inch rolls, the other nine rolls chilled, top, 12 inch, bottom, 14-inch, and intermediate, 7-inch; Upright Reel; Steady-motion Cutter; Driving Gears all complete. Taken out to make room for a 90-inch machine. Address
LOUIS SNIDER'S SONS, Hamilton, Ohio.

BARGAINS IN MACHINERY.

One Horizontal Corliss Engine, 20 × 48 in.
One Horizontal Corliss Engine, 18 × 48 in.
One Horizontal Corliss Engine, 14 × 42 in.
One Horizontal Wheelock Engine, 14 × 42 in.
Two Slide-Valve Engines, 10 × 24 in.
Two Slide-Valve Engines, 8 × 12 in.
Four Horizontal Tubular Boilers, 60 H.-P.
Three Horizontal Tubular Boilers, 50 H.-P.
Blake Steam-Pumps, Nos. 3, 4, 5, and 6.
One Engine Lathe, 24 in. × 20 ft.; new.
One Engine Lathe, 18 in. × 10 ft.
One Boring Mill, 32-in. Swing.
Several Upright Engines, from 6 to 40 H.P.
Also, Upright Boilers.
Send for Revised List.
D. B. CRUICKSHANK,
243 Dyer St., Providence, R. I.

PAPER MAKER WANTED.

One who thoroughly understands the manufacture of Tissue Manilla Paper. Address, with reference, stating salary, experience and where last employed,
W. R. GRAY,
116 Duane Street, New York.

FOR SALE.

Three 36-inch Rag Engines, sound and in good order, made by the undersigned. Same to be replaced by larger engines. Can be seen running at mills of Hon. Byron Weston, Dalton, Mass. Apply to
E. D. JONES,
Pittsfield, Mass.

FOR SALE.

We have in our Mills, at Adams, Mass., a 52-inch Fourdrinier Machine, which we take out to make room for a larger one. The Wire is thirty-three feet, Couch Rolls 12 inches in diameter; 14-inch Press Rolls, all brass-faced and as good as new; five Dryers, 28-inch; Hatch Cutter, Kneeland Layboy; all in excellent condition—now running. Parties wishing to purchase are invited to come and examine in operation; will be sold at a bargain.
L. L. BROWN PAPER CO.

I HAVE A FEW OF
MOORE'S IMPROVED FILTERS
(ENTIRELY NEW),
And having no use for them, will sell extremely low and guarantee them to do good work and much of it. Write to ADIN COOK, Norwich, Conn.

KEYSTONE CLAY CO.

WHITE CHINA CLAY. THOROUGHLY WASHED AND FLOATED.

WORKS, EASTON, PA.
Office, Germantown, Philadelphia.

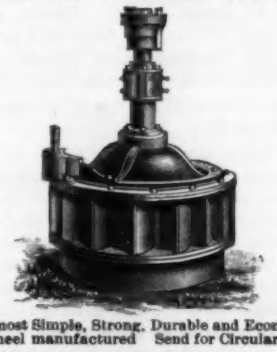
BARRY'S PATENT
Automatic Steam Regulator
Can be used with live or exhaust steam, or both.
For description and references address
THOS. P. BARRY & CO., Stillwater, N. Y.
GAGE MACHINE WORKS, Waterford, N. Y.

OHIO FELTS.

Fourdrinier and Cylinder Wet Felts,
PRESS FELTS and JACKETS,
MANUFACTURED BY
SHULER & BENNINGHOFEN,
HAMILTON, OHIO.

In ordering Felts, please mention kind of stock used, quality of paper made, and speed of machine.
Particular attention called to our Superfine Felts for Writing-Papers.
SATISFACTION GUARANTEED.

THE FLENNIKEN
TURBINE WATER-WHEEL



Is the most Simple, Strong, Durable and Economical Wheel manufactured. Send for Circular to
UTTER MANUFACTURING CO.,
ROCKFORD, ILL.

MAX COHN & CO.,
Belgian Paper Stock Co.,
GHENT, - - BELGIUM.
Packers and Shippers
— OF —
Rags and Paper Stock.
SPECIALITY: FLAX WASTES.

ESTABLISHED 1845.

MARTIN ROURKE & CO.,
MANCHESTER.
MR
PACKERS AND SHIPPERS OF
MANCHESTER GUNNY BAGGINGS,
COTTON WASTES AND PAPER STOCK,
Trentham Street Mills, Chester Road, Manchester, Eng.

STEPHEN LEE,
Morse Building, New York.
IMPORTER OF AND DEALER IN
Paper Makers' Supplies.

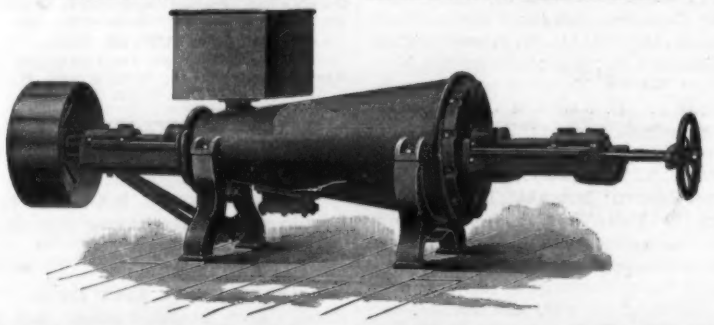
THE INTERNATIONAL
SULPHITE FIBRE and PAPER COMPANY,
82 Griswold Street,
DETROIT, MICHIGAN.

GEO. N. FLETCHER, President.
MOSES W. FIELD, Vice-President.
I. M. WESTON, Treasurer.
ALFRED M. LOW, Secretary.

DIRECTORS:
GEO. N. FLETCHER. MOSES W. FIELD.
I. M. WESTON. CHAS. L. ORTMANN.
WALDEMAR THILMANY.

Sole owners of the "MITSCHERLICH" patents for the manufacture of SULPHITE FIBRE in the United States and Canada.
Correspondence solicited with reference to the purchase of Mill rights and license under royalty. We refer to the Alpena Sulphite Fibre Co., Alpena, Mich., who are now operating a ten-ton mill under the Mitscherlich process.

THE BLACK & CLAWSON CO.,
— MANUFACTURERS OF —
Paper Mill Machinery,
FOURDRINIER, HARPER IMPROVED FOURDRINIER AND CYLINDER MACHINES.



JORDAN ENGINES,
JORDAN ENGINES REFILLED.
Screens, Calenders, Rag Cutters, Cylinder Molds, Deckle Straps, Paper Cutters, Screen Plates, Dandy Rolls, Stuff-Box Trucks, Iron and Brass Castings.
Revolving Reels and Stack Reels.
FOR PARTICULARS, ADDRESS
THE BLACK & CLAWSON COMPANY, Hamilton, Ohio.

MOORE
AND
WHITE,
1312-14-16
Buttonwood St.,
PHILADELPHIA.
PAPER MACHINERY.

FOUNDRY AND MACHINE WORKS,
LEE, Massachusetts.
E. P. TANNER, AGENT
PAPER MILL MACHINERY,
Engines, Machines, Calenders, Trimming Presses, Rag Cutters, Pulleys, Shafting, Gearing, Screen Plates, Cylinder Molds, Engine Roll Bars, Bed Plates, Etc. Iron and Brass Castings.
A NEW STOCK CUTTER EXPRESSLY FOR MANILLA MILLS.

FOSTER & BROWN, SACCARAPPA, MAINE,
MACHINISTS AND IRON FOUNDERS.
SPECIALTIES:
Improved Paper-Coating Machines; Hanging Machines, and Power Reels for Coated Paper; the Merrill-Foster Noiseless Pulp Screens; Paper Slitting and Trimming Machines; Hardened and Ground Slitters; Automatic Elevators.
BUILT UNDER OUR OWN SUPERVISION.

FOR SALE.
Ithaca Paper Mills, Ithaca, N. Y.
POWER—WATER AND STEAM.
72-INCH FOURDRINIER MACHINE.
Makes Fine Machine Book, Laid Writing, Parchment, Copying. Mill running full. Satisfactory reasons given for the sale.

FOR SALE.
Northampton Paper Mills, Northampton, Mass.
72-INCH THREE-CYLINDER MACHINE.
POWER—WATER OR STEAM.
THIRTEEN LARGE COTTAGES. FORTY-FIVE ACRES OF LAND.
Makes Super-Calendered Card, Duplex, Glazed Cover, Rope, Manilla and Specialties. Mill running full. Satisfactory reasons given for the sale.
Apply to VERNON BROS. & CO., New York.

HUB FRICTION CLUTCH
SIMPLEST MOST DURABLE MOST EFFECTIVE

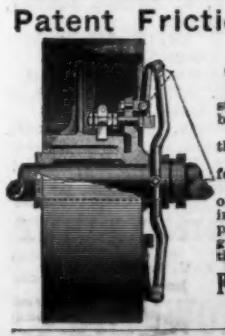
LINK-BELT Machinery Co., CHICAGO.
N. Y. BRANCH, 49 DEY STREET.
BURR & DODGE, PHILADELPHIA.

FRANK DILTS,
FULTON, NEW YORK,
—MANUFACTURER OF—
Voelter's Wood Pulp Grinders,
WITH SCREW OR HYDRAULIC FEED, AND
PAPER MILL MACHINERY.
Cone-Pulley Cutters, Paper Trimmers, Rag Cutters. Straw Washers, Stuff Pumps.
SPECIALTY MADE OF PAPER MILL ENGINES.
Also Engine Bars and Bed Plates; Improved Grinding Machine for Grinding; Press and Chilled Calender Rolls.
GENERAL JOBBING AND REPAIRING.

G. K. SHOENBERGER, - - - Proprietor.
CHICAGO
Steam Boiler, Engine Works and Iron Foundry,

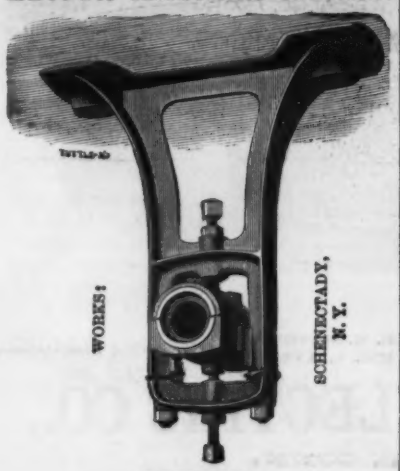
Water, Lard and Oil Tanks and Sheet-iron Work,
60, 62, 66, 68, 70 & 72 Michigan St., CHICAGO.

Patent Friction Pulleys
AND CUT-OFF
COUPLINGS.
Every pulley made strong enough for double belts.
Positively no end thrust.
Simplest and most effective clutch in market.
Friction applied at rim of pulley, therefore making it as strong as solid pulley. Every clutch guaranteed. For particulars address



Friction Pulley Co.,
SANDY HILL, N. Y.

SHAFTING DEPARTMENT
EDISON MACHINE WORKS.



SALESROOM:
19 Dey Street, New York.
Shafting, Pulleys, Hangers, Couplings, &c.
☞ Write for Illustrated Price List with Discount.
Machine Molded Pulley Castings for sale low,

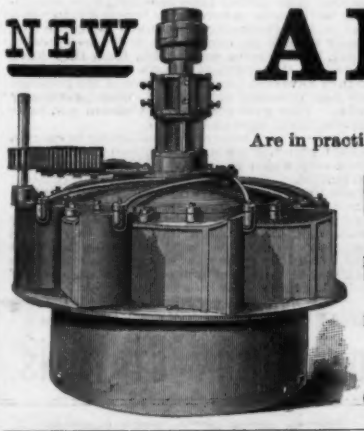
HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO.
HARTFORD. CONN.

—Thorough inspection.—
Insurance against loss or damage to property, also against loss of life and injury by Steam Boiler Explosions.

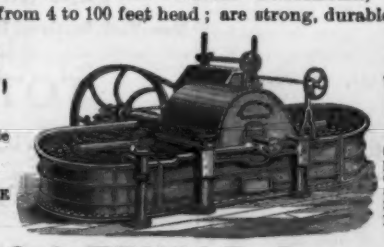
General Agents.		*Offices.*
THEO. H. BABCOCK,	*New York,*	265 Broadway.
CORBIN & GOODRICH,	*Philadelphia,*	430 Walnut St.
LAWFORD & MCKIM,	*Baltimore,*	23 Second St.
C. E. ROBERTS,	*Boston,*	35 Pemberton Sq
J. L. SMITH,	*Providence,*	15 Weybosset St.
H. D. P. BIGELOW,	*Chicago,*	112 Quincy St.
C. C. GARDINER,	*St. Louis,*	404 Market St.
L. B. PERKINS,	*Hartford,*	218 Main St.
LINSBURGH & SON,	*Bridgeport,*	868 Main St.
GEO. P. BURWELL,	*Cleveland,*	208 Superior St.
HUTCHINSON & MANN,	*San Francisco,*	306 Sansome St.
W. S. HASTIE & SON,	*Charleston, S.C.,*	50 Broad St.

MILLARD'S NEW
PATENT WOOD PULP GRINDER
WITH IMPROVED HYDRAULIC FEED,
Is Superior to any Machine now on the Market.
—BUILT BY—
THE STILWELL & BIERCE MFG. CO.,
DAYTON, OHIO, U. S. A.

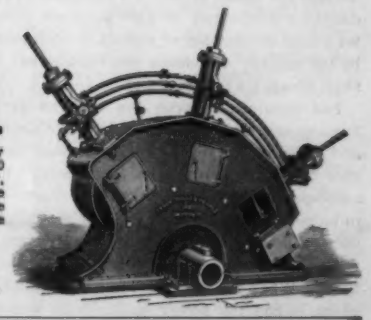
NEW **AMERICAN TURBINE,**
FROM SIX TO SIXTY-SIX INCHES DIAMETER,
Are in practical operation under heads from 4 to 100 feet head; are strong, durable, and give high efficiency.



BEATING ENGINES,
Cast-Iron or Wood Tubs,
Made heavy and strong, double lightered, with well-made Cone Washers.
DESCRIPTIVE CATALOGUE SENT FREE.

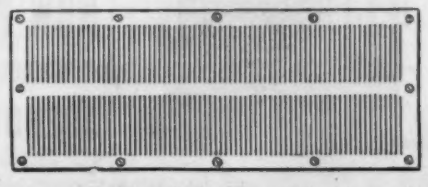


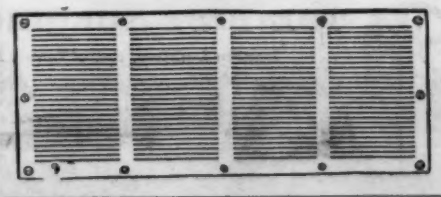
D. T. MILLS'
Wood Pulp Grinder.
Superior in construction to any made. Capacity, 2,000 to 3,500 pounds extra good pulp per day, dry weight. Hydraulic feeds, fine adjustments; strong and reliable in every way. Two and three pocket machines.



STOUT, MILLS & TEMPLE, Dayton, Ohio, U.S.A.

NATHAN BARNERT. ROBERT A. HALEY. WM. C. MARTIN.
ANNANDALE
Screen Plate Co.,
PATERSON, N. J.





Manufacturers and Repairers of
SCREEN PLATES.
Our New Plates are made of the
VERY BEST METAL,
and for price and durability cannot be surpassed.
OLD PLATES RE-CLOSED.

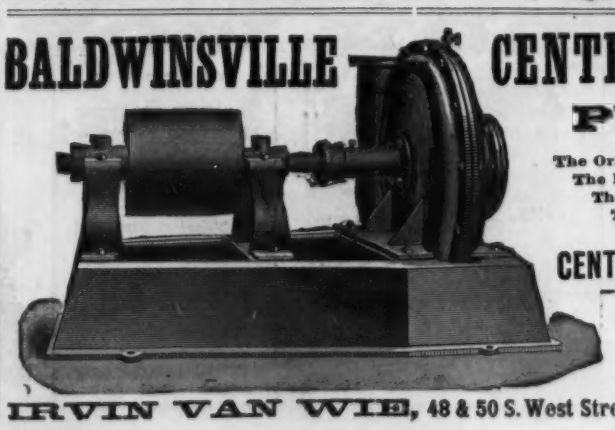
TAYLOR, STILES & CO.,
MANUFACTURERS OF THEIR
Giant Paper Stock Cutter
AND

(These Plates are made for Right and Left Hand Engines.)
ALSO
PAPER MILL FLY BARS.
Rag Cutter, Chipper, Stop Cutter and Trimming Knives.
RIEGELSVILLE, WARREN CO., N. J.

SPRINGFIELD GLUE and EMERY WHEEL CO.,
33 to 35 Taylor Street, Springfield, Mass.
IMPROVED AUTOMATIC KNIFE GRINDER.
Write for Illustrated Circular No. B.

ONCE IN MOTION REQUIRES NO ATTENTION. WILL grind a Knife in one-third of the time needed on any other machine. Will stop feeding and grinding at any point. Knife can be set with edge up or down to grind to or from the edge.
Water runs on wheel and prevents all heating and expanding of Knife while being ground, so that Knife is straight when done. Emery Wheel is hung in a swinging frame, easily adjusted by a forward movement as wheel wears away.
Has an Automatic Cross-feed that can be adjusted so precisely that it will grind 1-6,000th part of an inch at each traverse of the carriage, and as much more as desired. Wheel is 26 × 1¼ inch width, with 12-inch hole, so future wheels cost one-fourth less than ordinary wheels. The machine can be made to run with cup-shaped or tub wheel.

BALDWINSVILLE CENTRIFUGAL PUMP.

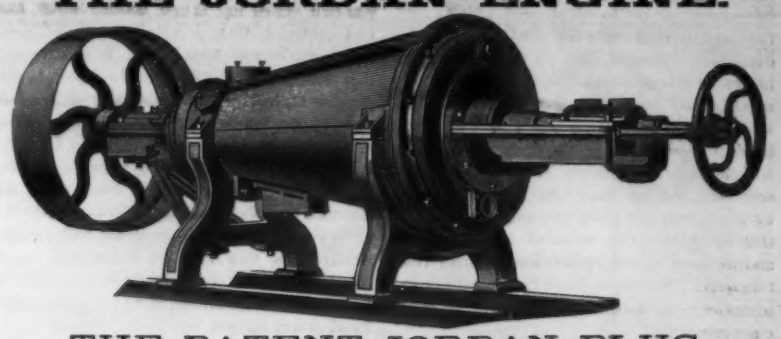


The Original,
The Most Efficient,
The Best Built,
The Easiest Running,
The Most Durable
CENTRIFUGAL PUMP
—IN THE MARKET,—
For Paper and Pulp Makers' use.
Before purchasing, address for Catalogue and Prices,
IRVIN VAN WIE, 48 & 50 S. West Street, Syracuse, N.Y

THOMPSON & CAMPBELL
(Successors to KREIDER, CAMPBELL & Co.),
1030 Germantown Ave., Philadelphia, Pa.,
W. H. RUSSELL'S SAND WASHER,
An improvement in Washing Engines.
MACHINISTS AND MILLWRIGHTS.
MANUFACTURERS OF
Beating and Washing Engines, Pumps, Rag-Dusters and Paper Mill Work in general.
MILLWRIGHT WORK A SPECIALTY.

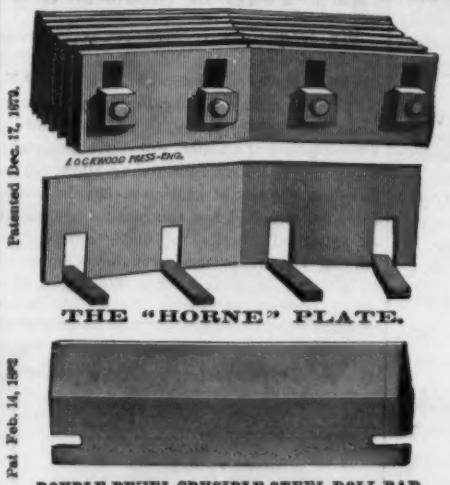
—ALSO, MAKERS OF—
Improved Cylinder and Fourdrinier Machines.

THE JORDAN ENGINE.



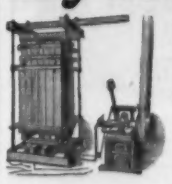
THE PATENT JORDAN PLUG.
Patented May 25, 1875, and Jan. 5, 1885.

This Plug is an Improvement over all kinds in the country. It can be Refilled with New Bars at the mill where it is used, when worn out, by any ordinary mechanic, in a short time, and thereby save freight and expense of sending it away to be refilled. All of our Jordans contain this style Plug.



J. H. HORNE & SONS,
MANUFACTURERS OF
Jordan and Paper Pulp ENGINES,
Roll Bars, Bed Plates, Rag Knives.
JORDAN ENGINES REFILLED.
Jordan Bar and Filling Constantly on Hand.
LAWRENCE, MASS.

Hydraulic Baling Press.



The Most Powerful, Convenient and Economical Press Made. Specially suited to the Paper Stock Trade.
FOR SALE BY
CRANE & TAYLOR,
Room 3. 106 Liberty Street, New York.
Sole Agents for New York and vicinity.

Fires.

The mill of the Tippecanoe Paper Company, Monticello, Ind., was burned on August 3. The loss is estimated at $50,000; insured for about $10,000.

The Elkhart paper pail factory, Elkhart, Ind., was burned on August 5, the fire originating from spontaneous combustion. Loss, $10,000; insurance, $6,000.

The Mill Grove Paper Mill, West Newton, Pa., was totally destroyed by fire at an early hour on Thursday morning, August 11. The fire was caused by spontaneous combustion. The loss was $30,000, on which there was $12,000 insurance. The mill was built in 1807, and was the oldest west of the Alleghany Mountains.

Rules for Shafting.

From the results of tests we have adopted the following rules, which, if they are not strictly correct, we believe to be nearer so than anything we have as yet been able to find in any books on the subject; and our experience in many years of practical use and observation has confirmed this opinion. To find the speed at which a shaft one inch in diameter should run to give a certain power, we divide the number of pounds in such power by the number of pounds per minute that the shaft is capable of giving out.

For example, suppose we wish to get 2 horse-power from a shaft one inch in diameter, and require to know how fast it must run to give that power, we have as follows: Two horse-power is equal to 33,000 × 2=66,000 lbs., to be moved at the rate of one foot per minute; 600 lbs. is the unit for one-inch iron moving at the same speed, then 66,000÷600=110 revolutions. When the speed and size of the shaft is given, to find the power multiply the number of revolutions by 600 and divide by 33,000, the value of 1 horse-power.

If we take the foregoing proposition, supposing the one-inch shaft to make 110 revolutions per minute, to find the power it is capable of giving we multiply 110 by 600 and divide by the value of 1 horse-power, thus, 110×600=66,000÷33,000=2 horse-power. Again, suppose we wish to find what sized shaft running 110 revolutions per minute will give 2 horse-power. First, we multiply the power given by the value of 1 horse-power and divide by the speed and unit of power for one-inch iron, thus: 2×33,000=66,000÷600=110÷110=1 inch.

So far the rules given only apply to shafts of one inch in diameter, but in order to apply them to shafts of all diameters, we must recollect that the torsional strength of all round bars are to each other as the cubes of their diameters. Now suppose we have a shaft two inches in diameter instead of one inch, and making 200 revolutions per minute, and we wish to know how much power it will safely transmit, we first take the cube of two, which is eight; this we multiply by 600, the unit for one inch, and we have 4,800; this multiplied by the speed, 200, gives 960,000. Now divide this by 33,000, the value of 1 horse-power, and we have 29 horse-power and a small fraction over. We think from the foregoing explanations the following rules will be easily comprehended:

Rule 1—When the diameter and speed of a shaft are given, to find its power: Multiply the cube of the diameter by 600, and that product by the number of revolutions, and divide by 33,000; the quotient will be number of horse-power.

Rule 2—When the size of shaft is given, and the power required, to find its speed: Multiply the given power by 33,000, and divide by 600; this quotient, divided by the cube of the diameter of the shaft, will give the number of revolutions.

Rule 3—When the power required is given, with the speed of the shaft, to find its size: Multiply the given power by 33,000; divide this product by 600; then divide this quotient by the speed, and the result is the cube of the diameter of the shaft required.

As this last rule may not be readily understood, the following example will illustrate it: Required, the diameter of a shaft to transmit 48 horse-power, running 330 revolutions per minute: 48×33,000=1,584,000÷600=2,640÷330=8, and the cube root of eight inches, two inches, the size required.—*C. R. Tompkins.*

General Notes.

The Standard Paper Company, of Milwaukee, Wis., has settled with its creditors at fifty cents on the dollar.

John Buchanan, printer and publisher, South Bend, Ind., has been closed out under foreclosure of chattel mortgage.

A judgment for $192 has been entered against Henry Schlingman, stationer, Philadelphia, Pa., and execution has issued.

The German news print manufacturers are complaining of unprofitable prices. It has been proposed to shut down for four weeks, to close from 6 A. M. to 6 P. M. on Sundays, and to adopt a minimum scale of prices. It is also suggested to have "syndicates" for print and other kinds of paper.

The H. E. Pratt Paper Company, 140 Nassau street, will have the agency for the Newcastle Mill of the Beaver Falls Paper Company, as it has had that of the Beaver Falls mill for several years.

The annual meeting of the German wood-pulp manufacturers will be held on September 3 at Nuremberg. Several technical subjects will be discussed, among them the advantages to be obtained from drying wood pulp and the best method; the cheapest drying apparatus for wood board and how board can be put on endless machines, and at what cost as compared with ordinary systems; the improvement of the cardboard market by a meeting of German manufacturers for the export trade, and, finally, to make arrangements for an international exhibition of ground wood in Hamburg.

Smith's pneumatic feed for calenders prevents all danger and risk to the person of the operatives ordinarily incident upon leading the paper through the stack. It also avoids "making broken" in the stack, as the doctors prevent the paper from clinging to the rolls, and as the action of the doctors upon the individual rolls removes any and all calender spots from their surfaces, the latter are kept in perfect condition, thereby preventing defacement or injury to the paper, which would otherwise be the case; also by keeping the rolls clean, removing all dust and grit, the necessity for frequent grinding of the latter is avoided. This valuable device is controlled by the Fall Mountain Paper Company, 53 Devonshire street, Boston, Mass.

Speaking of the Reliance Safety Water Columns, manufactured by the Reliance Gauge Company, of Cleveland, Ohio, the Boston *Journal of Commerce* says: "We have had one of the high and low water alarms upon the boiler of this office for a number of months, and have found it to be of great service in calling attention to the lack or superabundance of water. No difficulty whatever has been experienced from sediment, and it is surprising to see how effective the addition of the settling-chamber is in preventing accumulations and keeping the gauge-glass and passages clean and clear." The amount of matter blown off daily from this attachment, even with good water and a boiler blown out weekly, is astonishing and causes one to wonder why the combination columns without such an arrangement are not plugged up tight half the time.

Probably the largest contract ever made for steam-boilers for stationary purposes has recently been awarded by the Edison Electric Illuminating Company, of New York, to the Babcock & Wilcox Company for 8,700 horse-power of its water-tube boilers to supply three new central stations now in process of erection in the city of New York. It is expected that with economical engines these boilers will develop an indicated horse-power of not less than 15,000, which is greater than that of the most powerful steamship afloat, the Umbria, which has developed 13,000 indicated horse-power. The award of this contract to the Babcock & Wilcox Company is a compliment to its system of water-tube steam-boilers, particularly as this is the thirty-fifth order received from the different Edison companies for boilers for electric-lighting purposes. The Pearl street station has been running nearly six years with 900 rated horse-power of the same kind of boilers, which C. E. Chinnock (one of the construction committee of the Edison Company, and who is also the vice-president of the Edison United Manufacturing Company) says have given satisfaction and have cost practically nothing for repairs in that time; that they have been called upon frequently to furnish a capacity fully 60 per cent. above their rated power, and they have never failed in any case to respond generously with perfectly dry steam.

Horse-Power of Steam-Boilers.

We frequently receive requests from correspondents to give them a rule for finding the horse-power of a steam-boiler of any given size, but we must repeat again what we have so often said, that there is no reliable standard for a horse-power of a boiler. For convenience sake many boiler-makers estimate, or allow, ten to fifteen square feet of heating surface in boilers for a horse-power, but this means nothing at all in actual practice, for under different or varying conditions the same boiler may be 20 horse or 40 horse-power. We might, with equal correctness, speak of a 50 horse screw propeller. The boiler is only the agent whereby the power stored up in the coal is transmitted to the water, turning it into vapor, and this evaporation depends wholly upon the amount of coal burned. It is independent of grate surface, heating surface, or any other arbitrary dimensions.

The rate of combustion, so to speak, is the first consideration. Other things affect the duty of steam-boilers—the evaporation, for instance, but this relates chiefly to economy, and not to efficiency. If it were possible to burn 200 pounds of coal per square foot of grate surface in a steam-boiler which had previously burned only 100 pounds of coal, the evaporation would be increased, for every pound of coal burned evaporates a certain quantity of water, and the duty of the boiler or its efficiency is correspondingly increased. The boilers of steam fire-engines and locomotives are examples of this, for through the rapidity of the combustion these boilers far exceed in evaporative efficiency other boilers of the same size not worked as they are.—*Mechanical Engineer.*

BOUGHT. TESTED. ADOPTED.

THE EDISON CO.S

HAVE GIVEN

35 Orders

FOR

THE BABCOCK & WILCOX BOILER.

FIRST ORDER FOR

Menlo Park, N. J., 1878, · · 75 H.-P.

LAST ORDER FOR

New York Stations, 1887, · 8,700 H.-P.

TOTAL

Of the 35 Orders,

14,230 H.-P.

August, 1887.

The Babcock & Wilcox Boiler.

[Copy.] The Edison [Dictated.]
United Mfg. Co., 65 Fifth Ave.

NEW YORK, June 30th, 1887.

THE BABCOCK & WILCOX CO.,
30 Cortlandt St., New York City.
GEORGE BABCOCK, Esq., President.

MY DEAR SIR:

In answer to your inquiry in regard to the Babcock & Wilcox boilers in use at the Pearl street station since the fall of 1881, it gives me pleasure to state that these boilers have been subjected continuously to the most severe use it is possible to put a boiler to, and frequently they have been run to a capacity fully 60 per cent. above their rated power; and yet, I am free to say, in that time they have not given us the slightest trouble, and the amount that they have cost for maintenance of the pressure parts has, covering that period, been practically nothing. They gave plenty of dry steam, and have been absolutely tight at all times.

The boilers have shown unusual ability to carry a constant pressure under the extreme and sudden fluctuations which are unavoidable in an electric-light station.

While I was in charge of the Pearl street station I taxed these boilers for more than I believed they would stand, frequently, and I am perfectly willing to state that in no case did they fail to respond generously—so much so that I look upon them as a friend; and I am quite sure it is everyone's duty to speak well of "a friend in need, as well as in deed."

Believing this will be satisfactory, I remain,
Very truly yours,
[Signed,] C. E. CHINNOCK, Vice-Pres't.

FOR EDISON STATIONS.

[Copy.]

Construction Committee
FOR
Edison Electric Illuminating Co.
of New York.

Committee.
E. H. Johnson,
C. H. Coster,
C. E. Chinnock,
John I. Beggs.

Engineer.
J. H. Vail.

ENGINEER'S OFFICE,
Room 53, 16 Broad St.,
New York, July 28th, 1887.

THE BABCOCK & WILCOX CO.,
30 Cortlandt Street, City.

GENTLEMEN:

You are hereby notified that your proposals are accepted for water tube boilers, to be used in the three new stations of the Edison Electric Illuminating Company of New York City.

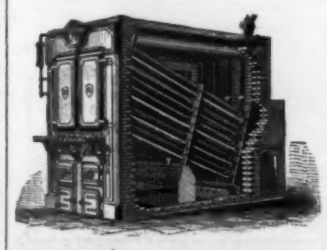
The horse-power required in these three stations will aggregate 8,700 horse-power.

I enclose you herewith contracts in triplicate, covering the boilers now required for station in 26th street.

Please execute contract and return two copies to me.

Yours truly,
[Signed,] J. H. VAIL,
Chief Engineer.

Enclosures.



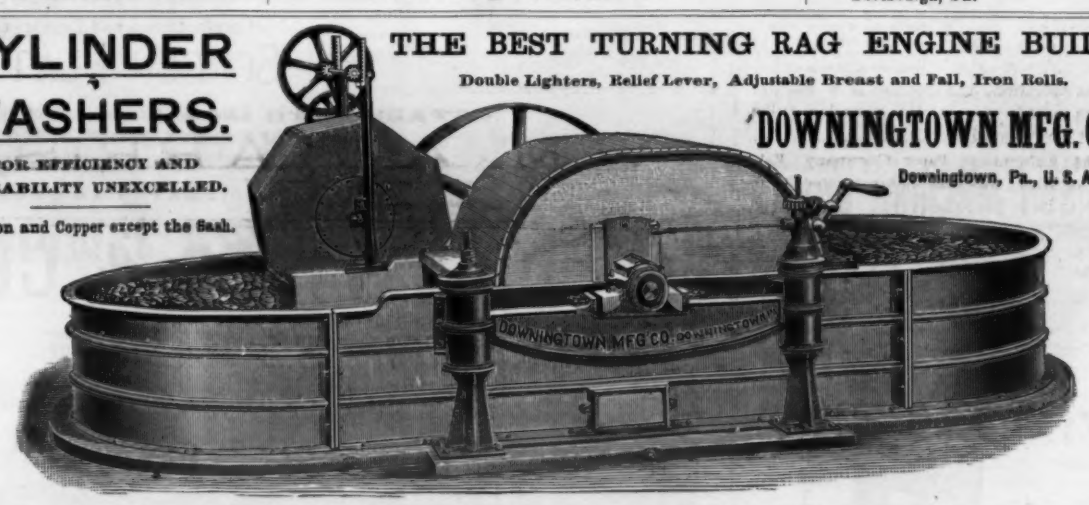
ROOT'S
New Water Tube Steam-Boiler.
ECONOMICAL, DURABLE AND POSITIVELY SAFE.
ABENDROTH & ROOT MFG. COMPANY
No. 28 Cliff Street, New York.

SELLING AGENTS:
A. B. ENSIGN, Rochester, N. Y.
A. S. FISKE, 41 Johnston Building, Cincinnati, Ohio.
WILLIAM H. SMITH, 115 Dearborn Street, Chicago, Ill.
WIGGS & BACON, Birmingham, Ala.
CHARLES E. ASHCROFT, 49 Mason Building, Boston, Mass.
JOHN S. MOORE, 169 Gravier Street, New Orleans, La.
THOS. B. PACKER, 603 Wood Street, Pittsburgh, Pa.

CYLINDER WASHERS.

FOR EFFICIENCY AND DURABILITY UNEXCELLED.

All Iron and Copper except the Sash.



THE BEST TURNING RAG ENGINE BUILT.
Double Lighters, Relief Lever, Adjustable Breast and Fall, Iron Rolls.
DOWNINGTOWN MFG. CO.
Downingtown, Pa., U. S. A.

H. G. CHENEY, President.
ROBERT CHENEY, Vice-Pres't.
P. H. WOODWARD, Sec'y and Treas'r.
N. T. PULSIFER, Gen'l Manager,
R. H. MATHER,
WM. A. ANTHONY, } Consulting Electricians.

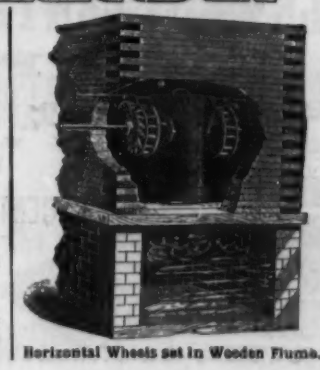
THE MATHER ELECTRIC CO.,
MANCHESTER, CONN.
Electric Lighting and Transmission of Power.
INCANDESCENT LAMPS AND APPLIANCES FOR INCANDESCENT LIGHTING.
PAPER MILL LIGHTING A SPECIALTY.
EXECUTIVE OFFICE: MANCHESTER, CONN.
CHICAGO OFFICE: 38 La Salle Street. | CINCINNATI OFFICE: Carlisle Building.
THE TUCKER ELECTRICAL MFG. CO., 35 Broadway, New York City,
Sole Agents of The Mather Electric Co. for the States of New York, New Jersey, Missouri and Iowa.

THE following Paper Manufacturers are using our Incandescent System: Merrimac Paper Co., Lawrence, Mass.; Agawam Paper Co., Mittineague, Mass.; Crane Brothers, Westfield, Mass.; Z. Crane, Jr., & Bro., Dalton, Mass.; Haverhill Paper Co., Haverhill, Mass.; Winona Paper Co., Holyoke, Mass.; Glen Manufacturing Co., Berlin Falls, N. H.; The Hartford Manilla Co., Burnside, Conn.; The Oakland Paper Co., North Manchester, Conn.; Sebago Wood Board Co., South Windham, Me.; Peter Adams Co., Buckland, Conn.; Harding Paper Co., Franklin, Ohio; Harding Paper Co., Middletown, Ohio; Hudson River Water-Power and Paper Co., Mechanicsville, N. Y.; Parsons Paper Co., Holyoke, Mass.; Train, Smith & Co., Bristol, N. H.; Worthy Paper Co., West Springfield, Mass.; Western Indurated Fibre Co., Winona, Minn.; S. D. Warren & Co., Cumberland Mills, Me.; P. H. Glatfelter, Spring Forge, Pa.; Richards Paper Co., Gardiner, Me.; S. D. Warren & Co., Gardiner, Me.

VALLEY IRON WORKS, Appleton, Wisconsin.

"New Northwestern."

MANUFACTURERS OF
Pulp and Paper
MACHINERY.
THE MOST PRACTICAL
WHEEL
IN THE MARKET.
Highest Standard of Efficiency.
☞ Send for Catalogue, containing full particulars, with Testimonials.



Horizontal Wheels set in Wooden Flume.

MANUFACTURERS OF
Shafting, Gearing, Pulleys, &c.
The Heaviest, Strongest, Simplest and Best
GRINDER
IN THE MARKET.
☞ Send for Catalogue, containing full particulars, with Testimonials.

Northwestern Wood-Pulp Machine.

Manufacturing News.

EASTERN STATES.

Sherman & Co., Me., Belfast, will put into their leather-board mill new and improved engines, and will renovate the buildings and machinery generally.

The Vernon Paper Company has contracted with the National Water Purifying Company, of New York, for a filtering plant which is to be placed in its mill at Russell, Mass.

The Bridgeport Paper Company, Bridgeport, Conn., has ordered one of Smith's pneumatic calender feeds.

The Glen Manufacturing Company, Berlin Falls, N. H., which now has four of Smith's pneumatic feeds in operation, will put in another one as soon as its new machine starts.

G. Lord, Watertown, N. Y., has put in a Barber siphon suction at the mill of the Seymour Paper Company, Windsor Locks, Conn.

MIDDLE STATES.

The Beaver Falls Paper Company, Beaver Falls, Pa., has put in new beating-engines, glazers, new stock-room, new finishing-room, &c., in its Newcastle Mill, which will be run on glazed hardware, the same as the Beaver Falls Mill.

The Hudson River Pulp and Paper Company, Palmer's Falls, N. Y., in giving contracts for its new machines, stipulated that they shall be supplied with Smith's pneumatic feed for calenders and Smith's "Perfect" regulator.

The Glens Falls Paper Mill Company, Glens Falls, N. Y, has ordered two more of Smith's pneumatic feed for calenders.

The Smith pneumatic feed was lately put in at Frank Gilbert's mill, Waterford, N. Y., and now the Lake George Pulp and Paper Company and the Ticonderoga Pulp and Paper Company, Ticonderoga, N. Y., have each ordered the same appliance.

Outterson Brothers have put in the Barber siphon suction, manufactured by G. Lord, Watertown, N. Y., at their new mill at Brownsville, N. Y.

WESTERN STATES.

A. T. & F. W. Dennison, Detroit, Mich., have recently made extensive repairs to their paper mill. A new Jordan engine has been put in operation, and they are now manufacturing manilla papers of a superior quality, about 5,000 pounds per day.

The Kalamazoo Paper Company, Kalamazoo, Mich., has been making extensive repairs to its mill and has new stacks of supercalenders and two steam-engines and boilers, increasing the product and improving its quality. This company finds trade active.

The construction of the Bardeen Paper Company's new mill at Otsego, Mich., is progressing, and the mill is expected to be ready by November. It is claimed that this will be the most perfectly equipped paper mill in the West. The buildings are 717 feet long. The product of the mill will amount to twelve to fourteen tons daily, and will include lithograph, plate, book, matrix, blotting, colored, folder, print and tobacco papers, a specialty being made of extra-wide super-calendered paper.

The new mill of the Michigan Paper Company, at Plainwell, Mich., is expected to start up this month. It will be supplied with the best machinery.

Mortgages, &c.

[In the appended list R. signifies a renewal of a pre-existing mortgage; B. S., bill of sale; and Real a mortgage on real estate.]

EASTERN STATES.

Mortgagor.	*Amount.*
Frederick Gleason, Boston, Mass.	$300
Samuel Stephens, Boston, Mass.	600

MIDDLE STATES.

Charles F. Schrader, Jr., Bayonne City, N. J.	250
Horace D. Bryan, Rochester, N. J.	600

WESTERN STATES.

O. S. Ingham, Oakland, Cal.	600
R. G. Dill, Denver, Col.	300
Howard & Howard, New Windsor, Col.	500
Wanamaker & Marshall, Indianapolis, Ind.	1,684
Reuben Daily, Jeffersonville, Ind. (Real)	7,000
D. W. Watsebaugh (Stockton & Watsebaugh), Leon, Ia.	250
Alfred Pew, Grand Island, Neb. (Real)	800
Cincinnati *Zeitung* Publishing Company, Cincinnati, Ohio	763
Anderson & Douglass, Ogden City, Utah	400

LIENS RELEASED.

C. R. Savage, Salt Lake City, Utah	1,000

Personals.

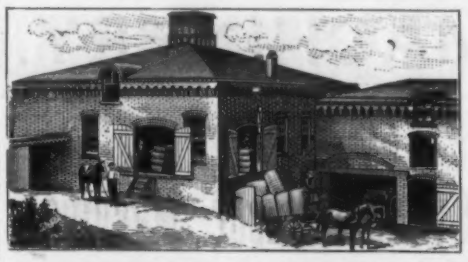
H. E. Pratt, of the H. E. Pratt Paper Company, is now at Guilford, Conn.

Frank Squires, of Perkins, Goodwin & Co., is in the White Mountains with his family.

Lawrence Dilworth, of Pittsbu g. Pa., with his family, is summering at Seabright, N. J.

J. W. Towne, the resident partner in New York of Blake, Moffitt & Towne, paper dealers, San Francisco, Cal., started for the latter city last Monday.

A. S. Demarest, with E. Butterworth & Co. with his family, has been spending his vacation in the city of Baked Beans.



WM. SHAY,
FIRST-CLASS
PAPER STOCK,
New Hamburgh, N. Y.
SHIRT CUTTINGS A SPECIALTY.

MISHAWAKA PULP CO.,
—MANUFACTURERS OF—
Spruce and Poplar Pulp.
OFFICE AND MILLS:
MISHAWAKA, INDIANA.

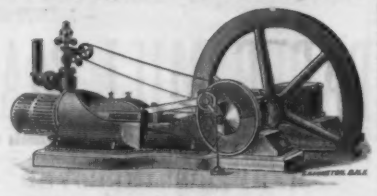
—ESTABLISHED 1843.—
HAMBURG, GERMANY. **A. WERTHEIM & CO.,** CASSEL, GERMANY.
Sorters, Packers and Shippers
LINEN —OF ALL KINDS OF— COTTON
RAGS A.W.&Co. TRADE-MARK. **RAGS**
Jute Baggings, Waste Papers,
HEMP, JUTE AND MANILLA ROPE
Carefully and Cleanly Sorted.
SOLE REPRESENTATIVE IN NEW YORK:
PHILIPP BAUER,
Bennett Building.

"QUEEN OYSTER SACK."
Dispenses with the usual cover. Easy to fill and close. Has large flat base. A perfect vessel for carrying liquids.
MANUFACTURED BY
Chicago Manila Paper Works,
75 & 77 Lake St., Chicago.
"KING" and "OVAL KING" TOILET PAPERS.

Patented Nov 2, 1886.

ESTABLISHED 1864.
WM. A. HARRIS,
MANUFACTURER OF
Harris-Corliss Steam Engines,
WITH HARRIS' PATENT IMPROVEMENTS.
—ALSO—
HEAVY and LIGHT IRON CASTINGS,
PROVIDENCE, R. I.
Send for copy Engineers' and Steam Users' Manual, by JOHN W. HILL, M. E. Price, $1.25.

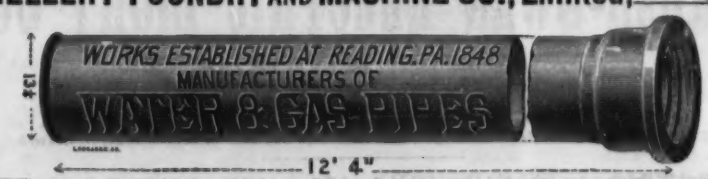
THE PORTER-HAMILTON ENGINE.
75 to 2,000 HORSE-POWER.
THE STRONGEST ENGINE IN AMERICA
Simple, Economical and of the Best Workmanship.
Write for Catalogue to the Builders,
WILLIAM TOD & CO., Youngstown, O.



ACME FELT MILLS.
WILLARD & MURPHY,
No. 340 Central Avenue, Albany, N. Y.,
—MANUFACTURERS OF THE—
ACME FELTS.
N.B.—Our Felts are superior to any other Felts made in America. NEWS PAPER FELTS A SPECIALTY. A trial solicited. Satisfaction Guaranteed.

SAVE YOUR POWER.
Prevent Your Belts from Slipping by Using
THE NATIONAL PULLEY COVERING.
EASILY APPLIED, CHEAP, EFFECTIVE.
No Rivets; can be put on by anyone. Satisfaction guaranteed. Send for Circulars with Prices.
THE NATIONAL PULLEY COVERING COMPANY,
Bowly's Wharf and Wood St., BALTIMORE, MD.

P. D. WANNER, Chairman. A. H. MELLERT, Secretary and Treasurer.
MELLERT FOUNDRY AND MACHINE CO., Limited, Reading, Pa.



12' 4"
FLANGE PIPE AND SPECIALS,
Stop Valves, Fire Hydrants and Lamp Posts, Structural Work, Car and Railroad Castings, the Canada Turbine, General Foundry and Machine Work.
JOHN FOX, Selling Agent, 160 Broadway, NEW YORK

WOOD PULP, STRAW PULP,
—AND—
ROTARY BLEACHING BOILERS.

THOSE WHO HAVE UNSAFE ROTARY BOILERS IN USE CAN EXCHANGE THEM FOR THE Loring Patent Rotary, and can be furnished with abundant evidence that the Loring Boiler is absolutely safe, and the only safe Rotary Bleaching Boiler in use. For the production of chemically prepared wood-pulp it has been found extremely difficult to make a boiler that would remain absolutely tight for any considerable length of time. I have accomplished this result by adopting modes of construction far in advance of the best methods for producing first-class boiler work, in combination with substances and methods entirely independent of boiler work, and only known to myself. I invite special inquiries in regard to my patent WOOD-PULP BOILERS, patent STRAW-PULP BOILERS, and Rotary Bleaching Boilers; also to my patent process for extracting water from wood and straw pulp, and to my improved Fibre or Drainer Tanks, and Fibre Valves. The common steam-boilers built by the undersigned have proved more durable and safer than those of any other manufacturer in the United States. Steam-boilers, now in good condition, that have been in constant use twenty-eight years, can still be seen in use in Boston. Not one of the many thousand boilers, varying in weight from one half to forty tons, has ever exploded or given out, to cause injury to a single person or to one dollar's worth of property, during the twenty-eight years.

HARRISON LORING, Boston, Mass.

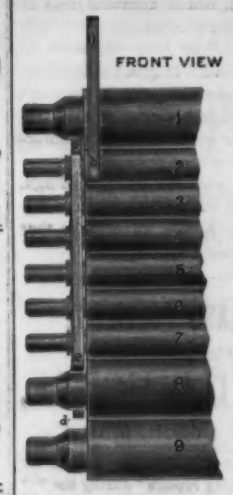
NOTICE.—I have been informed that irresponsible boiler-makers have offered to build Rotary Boilers with whole wrought-iron heads and a hollow journal, which would be an infringement of my patent. Such boilers will be made by the undersigned at low prices—having special tools for the work—and no extra charge made for the patent-right, which would have to be paid by the user if made by an unauthorized person.

HARRISON LORING.

A. HUGHES, Pres. J. H. KIRKWOOD, Sec. WM. WILSON, Supt.
WILSON & HUGHES STONE CO.,
Cleveland, Ohio,
MANUFACTURERS OF THE CELEBRATED
PENINSULA WOOD PULP GRINDSTONES, for Grinding Wood Pulp.
The grit of the stone from our Peninsula Quarry is particularly adapted to grinding Wood Pulp.
All the Wood Pulp Manufacturers who have used these stones say they give general satisfaction, and are much superior to any imported stone. We manufacture stones for the following machines: The Warren-Curtiss, Voelter, Brokaw, Frambach, Morgan & Bassett, Stout, Mills & Temple, Northwestern (Valley Iron Works), and all others.
In sending orders please be particular to give the exact dimension the stone must be. Give the diameter and face of stone, the diameter and depth of flangs, where flanges are to be cut. State size of hole for shaft, and if round or square.

SMITH, WINCHESTER & CO.,
SOUTH WINDHAM, CONN.,
—MANUFACTURERS OF—
PAPER MACHINERY,
CONSISTING OF
Fourdrinier and Cylinder Machines, Washing and Beating Engines, Air-Drying Machinery for Drying Sized Papers.

SOLE MANUFACTURERS of the Jordan Patent Beating Engine, which has no rival for clearing the stock for fine papers. Chilled Iron and Paper Roll Super Calenders, Plate Calenders, Chilled Stock Calenders, Rag Cutters, Hand and Power Cutting Presses and Stop Cutters; the Hatch Patent Stop Cutter, the only cutter that can be regulated to cut between water marks of writing papers. Screens, Brass and Nickel Plated, the latter warranted to wear twice as long as brass. Bed Plates, Roll Bars, Fan and Plunger Pumps. Also Gun Metal Covered Rolls, for Size and Press Rolls; Stevenson Water Wheels, Shafting and Mill Gearing generally



AUTOMATIC
"LEADING" DEVICE
—FOR—
Calender Rolls,
PATENTED JUNE 14, 1887.
A SIMPLE CONTRIVANCE WITHOUT COMPLICATION.
Reliable and Positive in Action.
Only One Attendant Required.

No skill or previous practice necessary.
Indispensable on fast-running machines.
Prevents straining or breaking the driving parts of the paper machine.
Saves 50 per cent. in broken paper, and affords perfect insulation from accident or personal injury to employees.
(See end view drawing.)

OPERATION.—Place the free end of the paper web on the face of the top roll, under pulley *a*, and the apparatus will conduct it evenly and smoothly to the bottom.

TESTIMONIALS.

LEE, MASS., June 6, 1887.
Messrs. T. A. BOYNE & Co.
Gentlemen: We have been using your Automatic Leaders on our Machine Calenders the past year, and can fully recommend them as doing all that you claim. I consider the most important advantage to be that it allows the machine-tender to give his whole attention to wire and felts, while the back-tender takes the paper from the first *dryer* to the *reels*. It also prevents clogging of rolls, broken paper, gears, belts, &c.; and not less important is its security for workmen from accident.
Respectfully yours,
FRANK HOLLISTER,
Sup't Columbia Mill.

LEE, MASS., June 9, 1887.
Messrs. T. A. BOYNE & Co.
Gentlemen: We have been using your Automatic Leaders on Machine Calenders, and must say we think it is all you claim or recommend it to be. Our machine-tenders say they would not be without the Leader on machine. I can fully recommend the Leader to be the best thing invented for saving of broken paper and sore fingers; also that it only requires the back-tender to pass the paper from dryers to reels, while machine-tender is tending to wire, felts, and other things, so important on fast-running machines. Respectfully yours,
A. CAMPBELL,
Sup't Valley Mill.

LEE, MASS., June 13, 1887.
T. A. BOYNE & Co.
Gents: We are using your Leaders—find them a great convenience and saving in broken paper and time. They make it easy for one man to run paper through calenders without assistance. Our machine-tenders speak loud in their praise.
Respectfully,
JAS. GILLMOR,
Sup't Housatonic Mill.

LEE, MASS., May 26, 1887.
Messrs. T. A. BOYNE & Co.
Gentlemen: We have been using your Automatic Leader for Machine Calenders for some time, and our machine-tenders, as well as myself, think very highly of its working. 1st. There will be no more disfigured or broken fingers for workmen. 2d. One man or boy can pass the paper from the dryers and put it on the reels. 3d. It will pay for itself in a very short time in the saving of broken paper. In fact we think the Leader is all that you claim for it, and anyone who may apply it to their Calenders would not be willing to have it removed.
Respectfully yours,
A. V. SHANNON,
Sup't of Smith Paper Co.'s Eagle Mill.
We fully endorse the above statements.
SMITH PAPER CO.
By WELLINGTON SMITH, Treas.

PRICE, $150. Send for Circular.
T. A. BOYNE & CO., LEE, Mass., U. S. A.

THE VOLKER & FELTHOUSEN MFG CO.
MANUFACTURERS OF
BUFFALO DUPLEX STEAM PUMPS.
FOR SALE AT FACTORY PRICES BY
A. Aller, New York.
S. C. Nightingale & Childs, Boston, Mass.
Henry I. Snell, Philadelphia.
Thos. J. Bell & Co., Cincinnati, Ohio.
Shaw, Kendall & Co., Toledo.
Geo. Worthington & Co., Cleveland, Ohio.
Pond Engineering Co., St. Louis and Kansas City, Mo.
Goulds & Austin, Chicago, Ill.
Kennedy & Pierce Machinery Co., Denver, Col.
Sherriff & Ashworth, Pittsburg, Pa.
Jos. Baur, Manistee, Mich.
Jas. Jenks & Co., Detroit, Mich.
Wickes Bros., East Saginaw; Adolph Leitelt, Grand Rapids; E. F. Osborne & Co., St. Paul, Minn.; Rundle, Spencer & Co., Milwaukee, Wis.; Joshua Hendy Machine Works, San Francisco; Flynn & Emrich, Baltimore, Md.; Forbes, Liddell & Co., Montgomery, Ala.; Bailey & Labby, Charleston, S. C.; O. B. Goodwin, Norfolk, Va.; Columbus Supply Co., Columbus, Ohio.

New Coloring Matters.

A new German process for producing red dyestuffs consists in combining tetrazo-diphenyl with naphthylamines or their sulpho acids, which is effected by bringing into contact aqueous solutions of tetrazo-diphenyl salts with aqueous solutions of alpha or beta naphthylamines, or with aqueous solutions of salts of the various sulpho-acids of alpha or beta naphthylamines. Instead of aqueous solutions of naphthylamine salts, there may be used alcoholic solutions of alpha or beta naphthylamine, or alpha or beta naphthylamine or their salts finely divided in water. The result of the combination of tetrazo-diphenyl with both naphthylamines are dyestuffs which are insoluble in water, but soluble in alcohol, and which form their respective mono and disulpho acids by treatment with concentrated sulphuric acid, anhydrous sulphuric acid, fuming sulphuric acid, or monochlorhydrine. The alkali salts of the thus formed mono and disulpho acids are yellowish-red or bluish-red dyestuffs which are soluble in water.

When alpha-naphthylamine is used red dyestuffs are formed, while beta-naphthylamine, in combination with tetrazo-diphenyl, yields yellowish-red dyestuffs. When tetrazo-diphenyl is combined with the sulpho-acids of alpha or beta naphthylamine, substances are formed that dissolve in water which is free of acid, and whose alkali salts form also yellowish-red to bluish-red dyestuffs. The formation of these substances can be effected by either pouring an aqueous solution of a tetrazo-diphenyl salt in an alkaline aqueous solution of a salt of the alpha or beta naphthylamine sulpho-acids while keeping the latter solution constantly alkaline, in which case directly alkaline solutions of the new dyestuffs are obtained, or by adding an aqueous solution of a tetrazo-diphenyl salt to an alcoholic solution of naphthylamine sulpho-acid, or to naphthylamine sulpho-acid finely divided in water. This reaction—that is to say, the formation of the new dyestuff—is, however, going on in the easiest manner if a solution of a tetrazo-diphenyl salt of one of the various sulpho-acids of alpha or beta naphthylamine is used, to which solution the required amount of sodium acetate has been added, so as to prevent the presence of free strong mineral acids—such as sulphuric or hydrochloric acids—after the solutions have been mixed, while some free acetic acid is left in the solution; but even then the formation of the new dyestuffs does not take place instantly, but gradually, and requires several hours before the reaction is completed.

The new dyestuffs are formed by combining one molecule of tetrazo-diphenyl with two molecules of alpha or beta naphthylamine or alpha or beta naphthylamine sulpho-acid, according to the following equation:

$$\left.\begin{matrix}C_6H_4N{-}NCl\\C_6H_4N{-}NCl\end{matrix}\right\} + 2(C_{10}H_7NH_2HCl) =$$

Tetrazo-diphenyl chloride. Naphthylamine chlorhydrate.

$$2HCl + \left\{\begin{matrix}C_6H_4N{-}NC_{10}H_6NH_2HCl\\C_6H_4N{-}NC_{10}H_6NH_2HCl\end{matrix}\right\}$$

Chlorhydrate of the new dyestuffs.

$$\left.\begin{matrix}C_6H_4N{-}NCl\\C_6H_4N{-}NCl\end{matrix}\right\} + 2(C_{10}H_8SO_3NaNH_2) =$$

Tetrazo-diphenyl chloride. Sodium naphthylamine sulphate.

$$2NaCl + \left\{\begin{matrix}C_6H_4N{-}NC_{10}H_6SO_2HNH_2\\C_6H_4N{-}NC_{10}H_6SO_2HNH_2\end{matrix}\right\}$$

New dyestuffs.

The salts of tetrazo-diphenyl are formed, as is well known, by the reaction of nitrous acid upon the salts of benzidine.

Example 1.—25.7 kilogs. of hydrochlorate of benzidine, or 28.2 kilogs. of sulphate of benzidine, or an equivalent amount of some other salt of benzidine, are finely divided in 500 litres of water containing 30 kilogs. of hydrochloric acid of 20° Baumé. To this is added under continuous stirring, and in small portions, a solution of 13.8 kilogs. of sodium nitrite of 100 per cent. in 150 litres of water.

The salts of benzidine to be diazotized should not be used in a dry state, but in the shape of a moist paste, as the reaction takes place slowly and imperfectly with dry benzidine salts. The benzidine salt dissolves and forms a solution of tetrazo-diphenyl chloride. This solution is poured under continuous stirring into a solution of 36.5 kilogs. of hydrochlorate of alpha-naphthylamine in 2,000 litres of water. A precipitate is formed at once, which, after settling for several hours, is decanted from the mother-liquor. It is then washed and dried. In order to transform the thus formed dyestuff, which is soluble in alcohol, into its monosulpho-acid, 25 kilogs. of the dyestuff are finely ground and sifted, and then slowly mixed, while exposed to cooling, with 75 kilogs. of fuming sulphuric acid containing 20 per cent. of anhydrous acid. The mixture is then raised to a temperature of 30° Cent. until a sample taken from the molten mass dissolves entirely in water containing some ammonia. When this point of solubility is reached the mass is mixed under continuous stirring with about 1,000 litres of water. The sulpho-acid formed thereby settles as a precipitate. It is separated from the mother-liquor by decanting and then transformed into a sodium or ammonium salt in the well-known manner. In order to produce a disulpho-acid of the substance formed by the combination of tetrazo-diphenyl with alpha-naphthalamine, 25 kilogs. of the same are mixed with 75 kilogs. of fuming sulphuric acid containing 20 per cent. anhydrous acid while the mixture is kept cool. Seventy-five kilogs. of fuming sulphuric acid containing 20 per cent. of anhydrous acid are then added and the mixture heated and kept at a temperature of 50° to 60° Cent. for about an hour. The molten mass is poured into about 3,000 litres of water and then boiled; next saturated with milk of lime and filtered. The calcium salt of the disulpho-acid contained in the filtered liquid is decomposed by either sodium or ammonium carbonate. Thus solutions of the ammonium or sodium salts of the disulpho-acid of the alpha-amido-naphthaline tetrazo-diphenyl are obtained, which, after being mechanically separated from the calcium carbonate, are evaporated to dryness, or the salts are obtained therefrom in the well-known manner by evaporation and treatment with common salt.

Example 2.—25.7 kilogs. of chlorhydrate of benzidine, or 28.2 kilogs. sulphate of benzidine, or an equivalent amount of some other salt of benzidine, are diazotized in the same way as described in the first example. The thus resulting solution of tetrazo-diphenyl chloride is slowly poured under continuous stirring into 1,000 litres of water containing 55 kilogs. of sodium naphthionate and 12 kilogs. of sodium acetate. After having settled for about twelve hours the thus formed paste of dyestuffs is mechanically separated from the mother-liquor and subsequently transformed in the usual manner into a sodium or ammonium salt and afterward dried. This is a patented process.

Plaster and china clay may have to make room for nematolyth, which contains from 95 to 96 per cent. of silicate of magnesia. It is said to be pure and free from peroxide of iron, sulphur and lime. It gives a dazzling, glossy surface to paper, and is fibrous, and thus permits felting, and is not for this reason carried off by the water used in manufacture, the loss being only 5 per cent., instead of 50 to 60 per cent. with the usual loadings. Even fine papers will take up 20 per cent., as its specific weight is hardly superior to that of cellulose impregnated with water.

A FIRST-CLASS PRIVILEGE
— IS OFFERED AT —
GROVE HILL HOTEL,
Kennebunk Beach, Maine,

To "tired" Manufacturers and Paper Dealers for investment and "making repairs" during the dull season, and to "brace up" for Fall business.

The Water Power is immense; large growth of Spruce Wood close at hand; plentiful supply of pure spring water, &c.

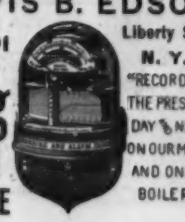
House first quality. Steam elevator, electric lights, and fresh table supplies "on spot."

The "tare" will not be excessive; weights guaranteed to hold out, and all claims allowed. Time, three months from June 15, with interest.

For further particulars and terms, send for circulars.

W. F. PAUL, Proprietor,
18 P. O. Square, Boston, Mass.

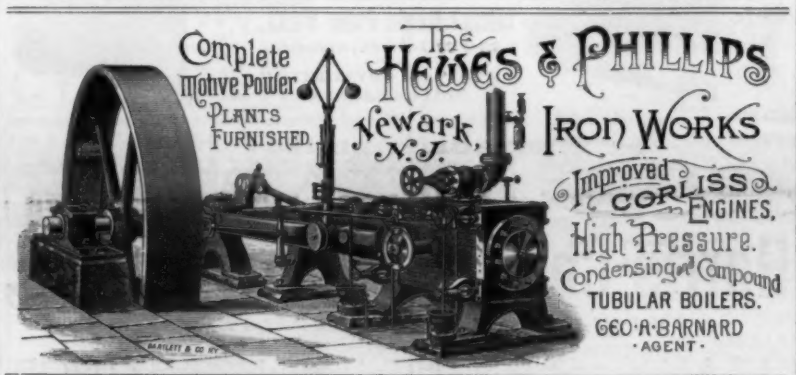
MASSASOIT HOUSE,
SPRINGFIELD, MASS.,
NEAR UNION DEPOT.
Graduated Rates, $3.00, $3.50 and $4.00 per Day.
W. H. CHAPIN, Proprietor.

14 YEARS. EDSON
FOR PAMPHLETS AND PARTICULARS ADDRESS
1873-1887.
JARVIS B. EDSON
No. 91 Liberty St., N. Y.
Recording STEAM GAUGE
NO EXPERIMENT.

"RECORDS THE PRESSURE DAY & NIGHT ON OUR MAINS AND ON OUR BOILERS"
"SHOULD NOT KNOW HOW TO GET ALONG WITHOUT IT."
"INDISPENSABLE TO INTELLIGENT MANAGEMENT."

PAPER MACHINERY.
BELOIT IRON WORKS,
Successors to MERRILL & HOUSTON IRON WORKS, Established 1858.
Fourdrinier and Cylinder Paper Machines,
PASTE LINERS, SHEET LINERS, CHILLED AND GRAY IRON ROLLS
Calenders, Cone Pulley and Stop-Cutters, heavy and medium; Automatic Ream Cutters, Iron and Gun-Metal Plunger Pumps, Fan Pumps, six sizes; Kingsland Engines, Steel Knives, Rag Cutters, Rag Dusters, Revolving and Stack Reels, Single and Double Iron Screen Vats, Friction Pulleys, "New Beloit" Iron and Wood Tub Beating Engines, Cylinder Washers with Galvanized Iron or Copper Dippers, Heaviest Washer Frames in the market. CALENDERS AND PRESS ROLLS ACCURATELY GROUND.
Complete Paper Mill Plans and Estimates furnished on application.
BELOIT IRON WORKS, Beloit, Wisconsin, U. S. A.

GEO. S. BARTON, Treas. CHAS. S. BARTON, Pres. LEWIS C. STONE, Manager.
RICE, BARTON & FALES MACHINE AND IRON CO.
(At Old Stand of Rice, Barton & Co.,)
WORCESTER, MASS.,
—MANUFACTURER OF—
PAPER MACHINERY
OF EVERY DESIRABLE VARIETY,
Iron and Brass Castings, Chilled Iron and Paper Calender Rolls, Rag Engines, Rag Cutters, Steam Pressure Regulators, &c.
HYDRAULIC PRESSES, FROM 5 TO 14 INCH PISTON

FIRST-CLASS PAPER MACHINERY.
CHAS. P. EDWARDS' SONS,
Millwrights and Machinists
CHATHAM, MORRIS COUNTY, NEW JERSEY.
MANUFACTURE ALL KINDS OF
PAPER-MAKING MACHINERY,
Paper Machines, with Improved Drying Cylinders and Stuffing Boxes; Rag Engines of Iron and Wood; Roll Bars and Bed Plates, Shafting, Gearing, Water-Wheels.
SECOND HAND MACHINERY FOR SALE. PLANS AND DRAWINGS OF MILLS.



SANDY HILL IRON AND BRASS WORKS,
Sandy Hill, Washington County, N. Y.,
— MANUFACTURERS OF —
PAPER MILL MACHINERY
Fourdrinier and Cylinder Paper Machines of extra heavy pattern. Stock Engines, Rag, Rope and Jute Cutters, Stuff and Fan Pumps, Chilled Calender Rolls, Gun Metal Rolls, Wood Pulp Machinery of all kinds, Water-Wheels and general Mill work. Rolls Reground by patent process.
HARPER'S IMPROVED FOURDRINIER MACHINES.

"ATLAS PULP."
THIS is a preparation of Sulphate of Lime, and being perfectly clean and bright, good color it is used with satisfactory results in the finest grades of writing-paper. A large percentage of the article can be retained in the paper without deteriorating the quality, and it also greatly improves the finish. Manufactured by
WORKS, No. 144 Lyman Street. ATLAS PULP CO., Springfield, Mass.

SULPHITE FIBRE.
Alpena Sulphite Fibre Company,
ALPENA, MICH.
CAPACITY, 10 TONS PER DAY.
(Manufacturers under Mitscherlich patents, owned by the International Sulphite Fibre and Paper Company, of Detroit, Mich.)

BRUSH-SWAN ELECTRIC LIGHT CO.
OF NEW ENGLAND.
W. L. STRONG, . . President. | G. McFALL, . . . Secretary.
A. D. JUILLIARD, . Vice-Pres't. | R. W. ABORN, . . . Treasurer.
JOHN B. POWELL, Gen'l Manager, 36 Union Square, cor. E. 16th Street, New York.
ELECTRICAL MACHINERY for ARC and INCANDESCENCE LIGHTING
ESPECIALLY ADAPTED FOR PAPER MILLS.
Surveys and Estimates made by our experts at our expense.

Paper Making and Its Accessories.

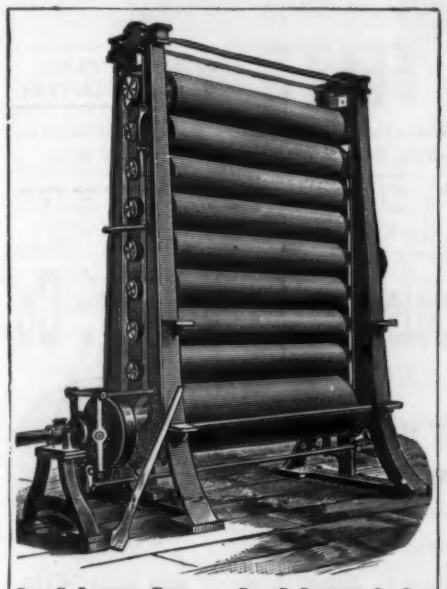
BOOKS OF REFERENCE.

THE following is a list of Books of Reference on subjects connected with Paper Making, Chemicals, Colors, Machinery, Hydraulics, &c.:

AUERBACH.—Anthracen: Its Constitution, Properties, Manufacture and Derivatives. 8vo	$5 00
BAIRD.—Standard Wages Computing Tables. Folio	5 00
BENSON.—Principles of the Science of Color. 4to	7 50
BENSON.—Manual of the Science of Color. 12mo	1 00
BESANT.—A Treatise on Hydro-Mechanics. 8vo	5 00
BOX.—A Practical Treatise on Heat as applied to the Useful Arts. Illustrated by 14 plates 12mo	5 00
BOX.—A Practical Treatise on Mill-Gearing. 12mo	3 50
BOX.—Practical Hydraulics. 12mo	2 00
BRESSE.—Hydraulic Motors. 8vo	2 50
BROWN.—Five Hundred and Seven Mechanical Movements. 12mo	1 00
CALVERT.—Dyeing and Calico Printing, including an Account of the Most Recent Improvements in the Manufacture and Use of Aniline Colors. With dyed Patterns. 8vo.	5 00
CHEVREUL.—The Principles of Harmony and Contrast of Colors and their Application to the Arts. Illustrated with Colored Plates. 12mo	3 00
COOPER.—A Treatise on the Use of Belting for the Transmission of Power. 8vo	3 50
CORFIELD.—Water and Water Supply. 18mo.	50
CROOKES.—Handbook of Dyeing and Calico Printing. With dyed Patterns. 8vo	15 00
CULLEN.—Practical Treatise on the Construction of Horizontal and Vertical Water Wheels. Quarto	5 00
DOWNING.—The Elements of Practical Hydraulics. 8vo	2 75
DUNBAR.—The Practical Paper Maker.	1 00
FAIRBAIRN.—The Principles of Mechanism and Machinery of Transmission. 12mo	2 50
FAIRBAIRN.—A Treatise on Mills and Mill work. 2 vols., 8vo	10 00
FANNING.—A Practical Treatise on Water Supply Engineering. 8vo	5 00
FRANCIS.—Lowell Hydraulic Experiments on Hydraulic Motors. Quarto	15 00
FRESENIUS.—Manual of Qualitative Chemical Analysis. 8vo	3 50
FRESENIUS.—System of Instruction in Quantitative Chemical Analysis	6 00
GLYNN.—A Treatise on the Power of Water. 12mo	1 00
HERRING.—Paper and Paper Making, Ancient and Modern. Plates. 8vo	3 75
JACKSON.—Hydraulic Manual. 8vo	10 00
JACOB.—The Designing and Construction of Storage Reservoirs. 16mo	50
ROSCOE.—Lessons in Elementary Chemistry, Inorganic and Organic. 12mo	1 10
JOHNSON.—The Practical Draughtsman's Book of Industrial Design and Machinist's and Engineer's Drawing Companion. With over 50 Steel Plates. 4to	10 00
KANE.—Elements of Chemistry, including the most Recent Discoveries and Applications of the Science to Medicine and Pharmacy, and to the Arts. Illustrated. 8vo	1 68
KINGZETT.—The History, Products and Processes of the Alkali Trade, including the most recent improvements. 8vo	2 50
KIRKWOOD.—Report on the Filtration of River Waters, for the Supply of Cities, &c. quarto	15 00
KOOPS.—Historical Account of the Substances which have been used to describe Events and to Convey Ideas from the Earliest Date to the Invention of Paper. By Matthias Koops. Printed on Paper Manufactured solely from Straw. London, 1801	10 00
KUTTER.—The New Formula for Mean Velocity of Discharge of Rivers and Canals. 8vo	5 00
LEFFEL.—The Construction of Mill Dams. 8vo	50
MUNSELL.—A Chronology of Paper and Paper Making. 8vo	2 00
NEVILLE.—Hydraulic Tables, Co-efficients and Formulæ for finding the Discharge of Water from Orifices, Notches, Weirs, Pipes and Rivers. 12mo	5 00
PALLETT.—The Millers's, Millwright's and Engineer's Guide. 12mo	2 00
RANKINE.—A Manual of Machinery and Millwork. 12mo	5 00
REID.—A Practical Treatise on Concrete and How to Make It. 12mo	2 00
REIMANN.—On Aniline and its Derivatives. 8vo	5 00
RIFFAULT.—A Practical Treatise on the Manufacture of Colors for Painting. 8vo	7 50
ROPER.—Use and abuse of the Steam Boiler. By Stephen Roper. Illustrated. 18mo., tucks, gilt edge	2 00
ROSE.—The Complete Practical Machinist. 12mo	2 50
ROUTLEDGE.—Bamboo, considered as a Paper making Material. 8vo., paper	50
SMITH.—The Dyer's Instructor; 800 Receipts.	3 00
SPON.—Workshop Receipts for the use of Manufacturers and Mechanics. 12mo	2 00
SQUIER.—Tropical Fibres; their Production and Economic Extraction. 8vo	6 00
SUTTON.—A Systematic Handbook of Volumetric Analysis. 8vo	5 00
THORPE.—Quantitative Chemical Analysis. 12mo	1 75
THORPE AND MUIR.—Qualitative Chemical Analysis and Laboratory Practice. 12mo.	1 50
URE'S DICTIONARY OF ARTS, MANUFACTURES AND MINES.—By Robert Hunt, F. R. S. Illustrated with nearly 2000 engravings on wood. 1867. 4 vols. 8vo	25 00
VON BEZOLD.—The Theory of Color in its Relation to Art and Art Industry. 8vo	5 00
WEISBACH.—Hydraulics and Hydraulic Motors. With 380 Illustrations. 8vo	6 00
WAGNER.—A Handbook of Chemical Technology. Translated and Edited by Wm. Crookes, F. R. S. With 336 Illustrations. 8vo	5 00
WATTS.—Dictionary of Chemistry and the Allied Branches of other Sciences. By Henry Watts, F. R. S. With the First and Second Supplements, bringing the record of discovery down to 1874. 5 vols. large 8vo	100 00

SEND ORDERS TO
HOWARD LOCKWOOD,
Box 3715 P. O. New York.

LOBDELL CAR WHEEL COMPANY



Wilmington, Del., U. S. A.,

MANUFACTURERS OF

CHILLED * ROLLS

For Paper Machines,

RUBBER, BRASS, COPPER, FLOUR, OIL AND INK MILLS.

Calenders Furnished Complete,

With Plain or Friction Clutch, Driving Pulley or Bevel Gearing, Journal Boxes or Side Pieces, Shafts, Levers, Weights, Outboard & Inboard Stands, &c.

ROLLS SUPPLIED,

Finished or Turned for Grinding.

Rolls Bored for Steam or Cast Hollow. Rolls of all Kinds Reground.

WE RECEIVED THE HIGHEST AWARD FOR

CHILLED CAST-IRON ROLLS

— AT THE —

Centennial Exposition in Philadelphia, 1876.
Paris Exposition, 1878.
Internat'l Cotton Exposition, Atlanta, Ga., 1881.

GEO. G. LOBDELL, Pres. GEO. G. LOBDELL, Jr., Sec.
WM. W. LOBDELL, Vice-Pres. P. N. BRENNAN, Treas.

As we cast all our own Rolls, as well as finish them, we have absolute control of their manufacture from the beginning, and can guarantee them to be

UNEXCELLED IN HARDNESS AND FINISH,

and equal in every respect to any other made.

GUARANTEE SATISFACTION. 30 DAYS' TRIAL.

THE ORIGINAL IMPROVED

Baldwinsville Centrifugal Pump

Our Patterns are New and of the Best Design. Our Shop has been fitted up with New Tools and Appliances of the best manufacture.

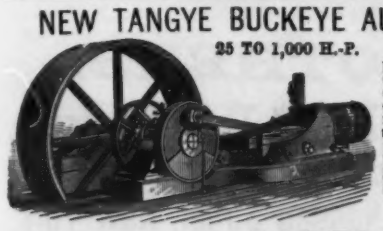
Being practical machinists for the past twenty-five years, we feel confident we can give the best satisfaction, and therefore we guarantee our work as to prices and quality in every respect, and most respectfully solicit the patronage of PAPER MANUFACTURERS.

Manufactured by **BOGGS & CLARKE,**

123 & 125 South Clinton Street, Syracuse, N. Y.

NEW TANGYE BUCKEYE AUTOMATIC CUT-OFF ENGINES.

25 TO 1,000 H.-P.



These Engines are the combined result of long experience with automatic cut-off regulation, and most careful revision of all details. They are designed and constructed for heavy and continuous duty at medium or high rotative speeds. Highest attainable Economy in Steam Consumption and superior regulation guaranteed. Self-Contained Automatic Cut-Off Engines, 25 to 100 H.-P., for driving Dynamo Machines a SPECIALTY. Illustrated Circulars with various data as to practical Steam-Engine Construction and performance, free by mail. Address

BUCKEYE ENGINE CO., Salem, Ohio.

SALES AGENTS:

W. L. SIMPSON, 70 Astor House, New York.
N. W. ROBINSON, Cor. Clinton & Jackson Sts., Chicago, Ill.
ROBINSON & CARY, St. Paul, Minn.

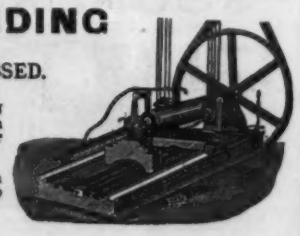
KENSINGTON ENGINE WORKS, Limited, Philadelphia,

Sole Licensees and Manufacturers for New Jersey (South of Trenton), Eastern Pennsylvania, Delaware, Maryland and Virginia.

CALENDER ROLL GRINDING

— AND —

PAPER SUPER-CALENDER ROLLS PRESSED.



WE make a Specialty of Grinding Calenders on "J. MORTON POOLE GRINDER," which is the only machine upon which a roll can be ground perfectly, either straight face or crowned truly from the centre.

Also Grind Iron Press and Gun Metal Couch Rolls.

Paper Super-Calenders REFILLED and Pressed. Can furnish suitable paper for same, or will press on such paper as may be furnished. Prices given upon application.

APPLETON MACHINE CO., Appleton, Wis.

No Ground Joints to be Leaking.

JENKINS' STANDARD PACKING

Said by Engineers and users to be

THE BEST IN THE WORLD!

JENKINS BROS.' VALVES.

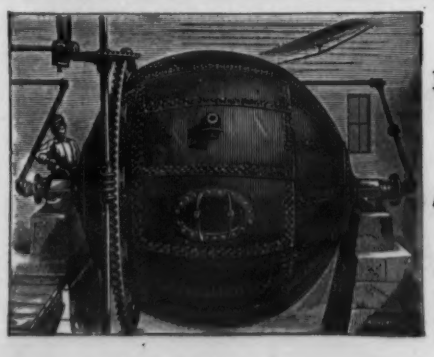
They are the ONLY Valves having all the late Improvements.

Every Valve stamped "Jenkins Bros." and Warranted. GET THE GENUINE.

JENKINS BROS., { 71 John Street, New York. 105 Milk Street, Boston.

13 So. Fourth St., Philadelphia. 54 Dearborn St., Chicago.

No Lead Seals to Corrode.



THE J. C. McNEIL CO.

MANUFACTURER OF

ROTARY GLOBE BLEACHING AND OTHER BOILERS FOR

Straw and other Pulp.

— ALSO, —

McNeil's Patent Soft Coal Magazine Heating Boiler. All kinds of Boilers and Heavy Sheet and Boiler Iron Work for PAPER MILLS a specialty.

Send for Catalogue No. 4 and information.

THE J. C. McNEIL CO., Akron Boiler Works. AKRON, OHIO.

ALWAYS GIVES THE UTMOST SATISFACTION.

MAIN BELTING COMPANY,

MANUFACTURERS OF

THE LEVIATHAN COTTON BELTING,

Unsurpassed for Strength, Durability and Cheapness.

Made to any Length, Width and Strength.

MAIN DRIVING BELTS,

Guaranteed to Run Straight, Even Throughout.

No Cross Joints, Unaffected by Damp, Clings well to the Pulley, Has no Equal; in fact, is THE BELT.

MAIN BELTING COMPANY,

S. W. cor. Ninth and Reed Sts., Philadelphia, and 248 East Randolph St., Chicago.

F. GRAY, President. H. C. NELLIS, Vice-President.
W. C. GRAY, Secretary and Treasurer.

PIQUA WOOLEN MILLS.

THE F. GRAY CO.,

MANUFACTURERS OF

FOURDRINIER and CYLINDER

FELTS,

FELTS

Press Felts and Jackets for all kinds of Paper.

FELTS

Especial attention is invited to our FOURDRINIER FELTS for FAST RUNNING ON NEWS, which are unsurpassed.

ALSO, TO OUR

"EUREKA FELT,"

For Fast Running on Cylinder Machines,

which we have perfected within the last few months, and which is rapidly gaining favor with Paper Makers wherever it is used.

EXTRA HEAVY CANVAS DRYER FELTS, all widths, cut to any length, at Manufacturers' Prices.

WE WARRANT EVERY FELT to work well, and if it does not, it can be returned.

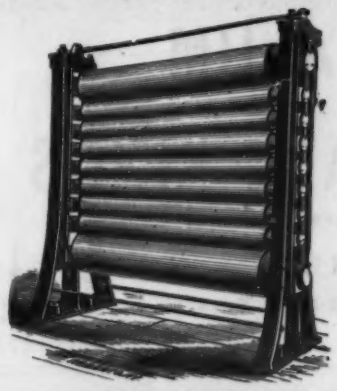
We also manufacture Blankets, Flannels, Stocking Yarns of all Colors, and Men's Heavy Wool Socks. Also, an Extra Heavy 6-4 Scarlet and White Flannel for Underwear, which we guarantee not to shrink. All the above we offer to Paper Makers at the Lowest Wholesale Prices, in quantities to suit.

Very respectfully,

THE F. GRAY CO., Piqua, Ohio.

THE J. MORTON POOLE CO.

Wilmington, Delaware.

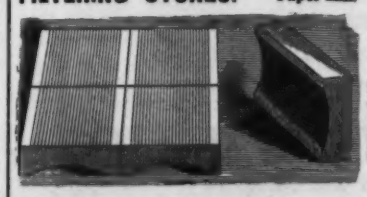


MANUFACTURE

Chilled Rolls

GROUND BY THEIR PATENT PROCESS.

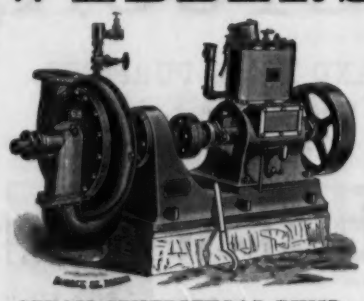
FILTERING STONES. In Use in the Leading Paper Mill.



For Circulars and Prices address the Mfr.

SAMUEL SNELL, Holyoke, Mass.

WEBBER'S



STEAM CENTRIFUGAL PUMP,

giving the greatest efficiency of any Centrifugal Pump in the market. Send for catalogue.

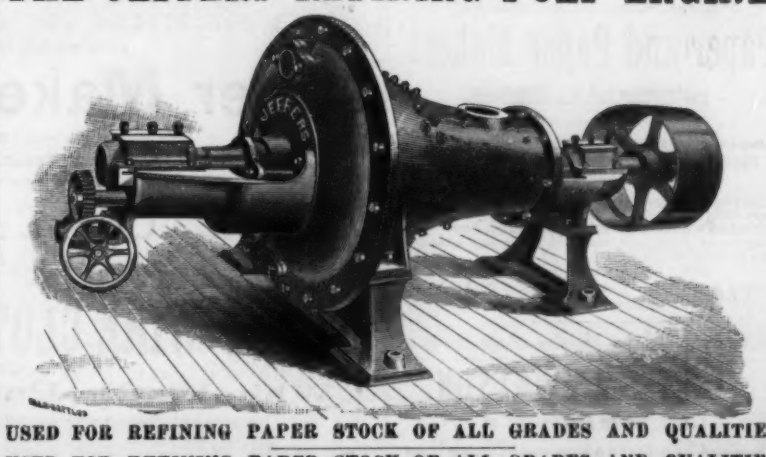
LAWRENCE MACHINE CO.,

Mason Building, Boston, Mass.

AGENTS: New York Office, 17 Cortlandt Street; J. Post, Jr., & Co., Boston, Mass.; H. D. Gregory & Co., San Francisco, Cal.; Fairbanks & Co., St. Louis Mo.; R. H. Buchcman & Co., Montreal, P. Q.

We have lately added to our Equipment a 10-ft. Pond Boring Mill, and are prepared to accept orders for large pulleys and other turning up to that diameter.

THE JEFFERS REFINING PULP ENGINE.



USED FOR REFINING PAPER STOCK OF ALL GRADES AND QUALITIES.

USED FOR REFINING PAPER STOCK OF ALL GRADES AND QUALITIES.

THESE ENGINES treat the stock differently from any others, and in a manner more nearly correct, both theoretically and practically. The fibres are not cut by the action of the knives, but are drawn out gradually, and properly finished. By using this Engine, stock can be taken from the beaters three to four hours sooner than if finished altogether in them, thus practically increasing the capacity of the mill. The curved knives are so formed as to avoid unnecessarily close contact at any point, and this will account for the relatively small amount of power required to drive the Engines, the great durability of the knives, and the superiority of the product. Cone should revolve 400 times per minute to produce the best results. Floor space, 9 feet by 4 feet. Distance from floor to centre of shaft, 72 inches.

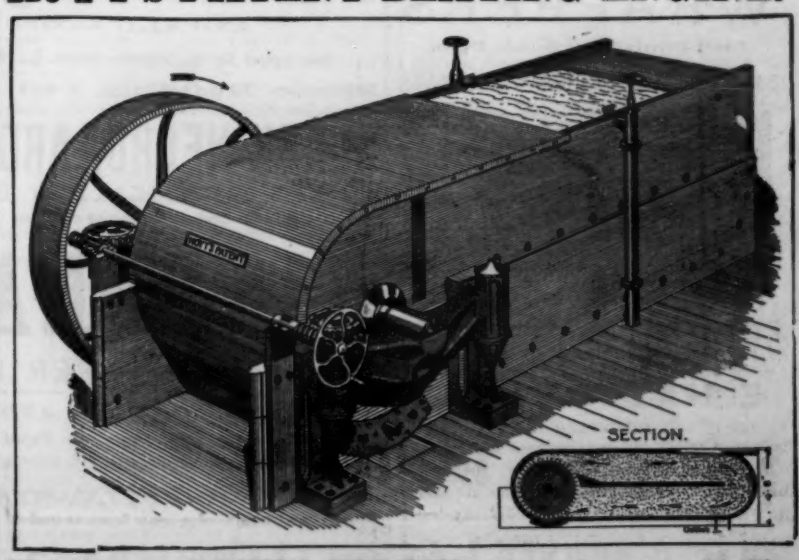
— BUILT ONLY BY —

THE PUSEY & JONES COMPANY,

Builders of Paper Machinery,

WILMINGTON, DEL.

HOYT'S PATENT BEATING ENGINE.



FOR PARTICULARS ADDRESS **JOHN HOYT,** Manchester, N. H.

HYATT PURE WATER SYSTEM.

Adapting Nature's Processes—Endorsed by the Highest Authorities.

PURIFYING 150,000,000 GALLONS DAILY. Adopted by over 20 DIFFERENT CITIES and TOWNS, and 1,000 or more manufacturers, &c., in the United States, Canada, West Indies and South America.

HAS NEVER FAILED. FREE FROM LEGAL COMPLICATIONS.

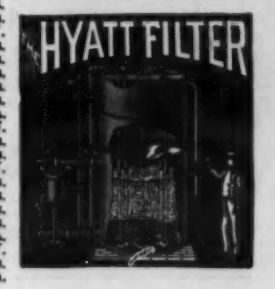
— INDISPENSABLE TO —

PAPER MANUFACTURERS.

Muddy Water made Clean; Hard Water made Soft; Scale and Mud Deposits in Boilers prevented.

ADOPTED BY THE FOLLOWING, AMONG MANY OTHERS, WITH PLANTS VARYING FROM 50,000 to 2,000,000 GALLONS DAILY CAPACITY:

GEO. W. WHEELWRIGHT PAPER CO.,	Fitchburg, Mass.
GEO. W. WHEELWRIGHT PAPER CO.,	Leominster, Mass.
HUDSON RIVER WATER-POWER AND PAPER CO.,	Mechanicville, N. Y.
WINONA PAPER CO.,	Holyoke, Mass.
MASSASOIT PAPER CO.,	Holyoke, Mass.
RIVERSIDE PAPER CO.,	Holyoke, Mass.
SYMS & DUDLEY PAPER CO.,	Holyoke, Mass.
NONOTUCK PAPER CO.,	Holyoke, Mass.
M. & W. H. NIXON,	Philadelphia, Pa.
DIAMOND PAPER MILLS,	Milburn, N. J.
VERNON BROS. & CO.,	Westfield, Mass.
CRANE BROS.,	Westfield, Mass.
GILBERT & BELL,	Waterford, N. Y.
CAREW MFG. CO.,	South Hadley Falls, Mass.
Z. CRANE, Jr., & BRO.,	Dalton, Mass.
CRANE & CO.,	Dalton, Mass.
CRANE & CO., U. S. Treasury Mill,	Dalton, Mass.
H. F. WATSON,	Erie, Pa.
TICONDEROGA PULP AND PAPER CO.,	Ticonderoga, N. Y.
FITCHBURG PAPER CO.,	Fitchburg, Mass.
PETER ADAMS PAPER CO.,	Buckland, Conn.



FOR PAMPHLETS, ETC., ADDRESS

HYATT PURE WATER CO., Tribune Building, New York.

NATIONAL FILTER.

NO MECHANICAL COMPLICATIONS SUCH AS SPRINGS AND PUMPS.

The pressure of the water alone is required to operate the Filters. Endorsed by the largest Paper Makers in the country.

The pressure of the water performs in ten minutes the work of cleansing, that requires an hour with other forms of Filter.

☞ Circulars and full particulars on application.

NATIONAL WATER PURIFYING CO.,

145 BROADWAY, cor. Liberty St., NEW YORK CITY.

Refer by permission to HENRY R. WORTHINGTON, 86 and 88 Liberty St. and INGERSOLL ROCK DRILL CO., 10 Park Place, New York City, and others.

THE BEST PAPER OR PULP MILL PUMP IN EXISTENCE.

WHY THIS IS PUT HERE!

For the reason that if you are interested in raising water or other liquids by steam power, we wish to call your attention to the

NEW PULSOMETER,

THE CHEAPEST AND BEST STEAM PUMP IN THE MARKET. PRICES LOWER THAN ANY OTHER.

More Efficient, Simple, Durable, and more Economical, both as to running expenses and repairs, than any other Steam Pump.

Call or write for our new 86 page Illustrated Descriptive Book containing Full Particulars, Reduced Net Prices, and hundreds of A-1 Testimonials. Mailed Free.

PULSOMETER STEAM PUMP CO., 83 JOHN STREET, N. Y.

RICE, KENDALL & CO.,

MANUFACTURERS OF AND DEALERS IN

Paper and Paper Makers' SUPPLIES.

—AGENTS OF THE—

American "Excelsior" Felts and Crane's Bond Papers; Tileston & Hollingsworth's Chromo, Lithographic and Superfine Papers.

Having the Agency of several of the largest and best Mills in New England, we are able to supply PUBLISHERS with Fine and Superfine Book Papers of every size and weight, in any quantity, and at short notice.

Sole Agents for CROCKER'S AMERICAN MATRIX PAPER.

91 Federal Street, Boston, Mass., U. S. A.

EDWARD H. WATSON,

IMPORTER OF AND DEALER IN

Paper Manufacturers' Supplies.

—AGENT FOR—

WHITEHEAD'S FELTS AND JACKETING, CURTIUS' ULTRAMARINE, EX. EX. EX. HEAVY DRYER CANVAS.

Vanderbilt Building, 132 Nassau Street, NEW YORK.

WAREHOUSE: 81 ANN STREET.

EDW. H. HASKELL,

Paper-Makers'

WRAPPERS

Every Description at Bottom Prices.

33 FEDERAL STREET, BOSTON, MASS.

ELECTRIC LEATHER BELTING

Used for running Paper Machinery. Warranted to run steady and smooth, and without stretching. Write for particulars and prices to CHARLES A. SCHIEREN & CO., Manufacturers and Tanners of Oak Leather Belting and Lace Leather, 47 FERRY STREET, NEW YORK.

E. HATTON & CO.

IMPORTERS OF

Rags and Paper Stock,

27 SOUTH ST., NEW YORK.

CHAS. P. SUMNER & CO.

(Successors to WATSON, SUMNER & CO.),

No. 5 BOWLING GREEN, NEW YORK,

Importers of and Dealers in all Descriptions of

PAPER MANUFACTURERS' SUPPLIES.

AGENTS FOR THE UNITED STATES FOR Whitehead's Felts and Jackings and Curtius Ultramarine. Extra Extra Heavy Canvas Dryers, all widths, Extra Strength Bleaching Powder, Soda Ash, all Brands and Tests, ALWAYS IN STOCK AT LOWEST PRICES.

Satisfaction Guaranteed. Send for Prices.

R. H. OVERTON,

8 Reade Street, New York,

DEALER IN

Paper-Makers' Supplies

FOREIGN AND DOMESTIC.

SERGEANT BROS.,

132 Nassau St., New York, P.O. Box 3709.

HAVE ALWAYS ON HAND AND TO ARRIVE

FOREIGN RAGS, JUTE AND PAPER STOCK, CHEMICALS, CLAYS, ANIMAL AND ROSIN SIZE.

ALSO AGENTS FOR The Swan Brand Silesian White and H. & S. Brands Southern Clays.

WOOD PULP.

Mechanical and Chemical.

FOREIGN AND DOMESTIC.

JOHN H. LYON & CO., 10 & 12 Reade St., NEW YORK,

— AND —

IRA L. BEEBE, 132 Nassau Street, New York.

H. C. HULBERT & Co.,

53 BEEKMAN ST., NEW YORK,

— Importers of and Dealers in —

Paper Makers' Supplies.

SOLE AGENTS FOR OVER TWENTY YEARS FOR THE SALE OF "Stubbins Vale Mills" FELTS, PEARL HARDENING and "Berger" ULTRAMARINE.

Also Sole Agents for the following Brands of

ALUM: (H) H (H) (H)

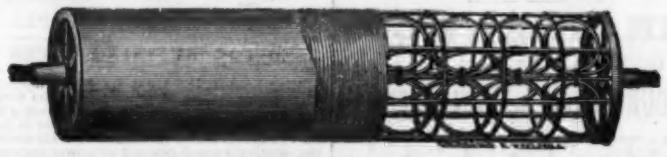
EXTRA HEAVY CANVAS FOR DRYERS.

DeWITT WIRE CLOTH CO.,

11 Murray Street, New York, 703 Market Street, Philadelphia, 110 Lake Street, Chicago,

SOLE MANUFACTURERS OF

Whitehead's Patent Dandy Roll.



Also Manufacture FOURDRINIER and CYLINDER WIRES, Cylinders and Dandy Rolls made and Repaired. Lettering and Designing on Dandy Rolls executed neatly and promptly. Dealers in all kinds of Paper Mill Supplies.

ATTERBURY BROTHERS,

IMPORTERS OF AND DEALERS IN

Cotton and Linen Rags, Flax Waste, Bagging,

AND ALL KINDS OF PAPER STOCK.

Sole Agents for the Superior Brand, L. M. & S. RUSSIAN LINENS.

Morse Building, 140 Nassau St., New York.

CLARK-NEERGAARD CO., Dryer Felts,

14 BEEKMAN ST., NEW YORK.

Our Felts are now running on over 350 machines. Send trial order. See our advertisement on 2d page.

NATRONA POROUS ALUM,

FOR PAPER MAKERS' USE.

FREE FROM IRON AND FROM EXCESS OF ACID.

Two pounds of it will size as much Paper as three and one-fourth pounds of Lump or Ground Alum, and is 12 per cent. stronger in alumina than any other Alum offered.

PENNSYLVANIA SALT MFG. CO.,

140 South Delaware Avenue, Philadelphia. 321 North Second Street, St. Louis, Mo.

Agents: W. M. ELLICOTT & SONS, Baltimore; MOREY & CO., Boston; E. L. EMBREE, New York.

PEARL ALUM

AND

ALUMS OF ALL KINDS

SPECIALLY ADAPTED FOR PAPERS OF ALL GRADES.

HARRISON BROS. & CO.,

Philadelphia and New York.

—ESTABLISHED 1853.—

J. W. LYON & CO.,

RAG WAREHOUSE,

44 & 46 Duane Street, (P. O. Box 2230,) New York.

FOREIGN AND DOMESTIC PAPER STOCK AND WOOLEN RAGS OF ALL DESCRIPTIONS.

☞ Cash paid for all kinds of WOOLEN RAGS and PAPER STOCK in large or small lots.

JOHN H. LYON & CO.,

— IMPORTERS AND DEALERS IN ALL GRADES OF —

PAPER STOCK,

And Dealers and Packers of all Grades of

WOOLENS FOR SHODDY AND FLOCK PURPOSES.

Office: 10 & 12 Reade Street,

WAREHOUSE: 35 PARK STREET, NEW YORK.

BULKLEY, DUNTON & CO.,

No. 74 John Street, New York,

"EXCELSIOR" FELTS

PIECE FELTING and JACKETING.

For Economy, Durability and Good Results they are Unequaled. Long Established and Well Known. A Trial is Solicited from Manufacturers not already Using them.

EXTRA HEAVY CANVAS DRYERS

Satisfaction Guaranteed. Send for Price List.

Wm. Cabble Excelsior Wire Mfg. Co.

No. 43 Fulton Street,

NEW YORK.

MANUFACTURERS OF

Superior Fourdrinier Wires. Cylinder Wires, Brass, Copper and Iron Wire Cloth of every description,

Brass, Copper and Iron Wire. Dandy Rolls, Cylinder Molds Best Quality of Wire Rope.

☞ *Write for Price List.*

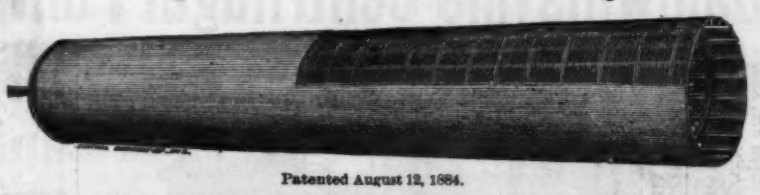
EASTWOOD WIRE MFG. CO.

BELLEVILLE, N. J.,

— MANUFACTURERS OF —

FOURDRINIER WIRES WITH PATENT SAFETY EDGE.

Improved Patent Dandy.



Patented August 12, 1884.

BRASS, COPPER AND IRON WIRE CLOTH OF EVERY DESCRIPTION.

☞ SEND FOR SAMPLES AND PRICES.

IMPORTANT TO PAPER MANUFACTURERS!

We have now running at our works one of

POOLE'S PATENT ROLL GRINDERS,

and are prepared promptly to regrind Old Rolls, soft as well as chilled. Manufacturers can rely upon having their rolls ground perfectly, and at a material saving of freight, by applying to

THE TOWNSEND FURNACE AND MACHINE SHOP,

RUFUS K. TOWNSEND, Proprietor, ALBANY, N. Y.

ESTABLISHED 1826.

LEWY BROTHERS,

German and Russian Linen Rag Packers.

BERLIN and KOENIGSBERG, Germany.

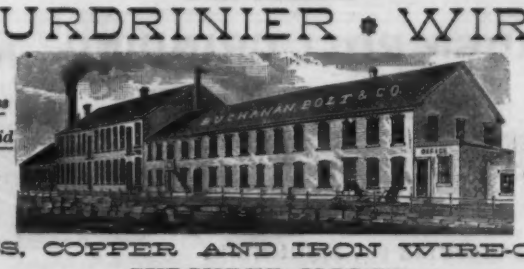
MORSE BUILDING, No. 140 Nassau Street, New York.

BUCHANAN, BOLT & CO., HOLYOKE, MASS.,

MANUFACTURERS OF

FOURDRINIER * WIRES,

Patent Seamless Woven and Laid Dandy Rolls.



Cylinders and Dandy Rolls covered and repaired

BRASS, COPPER AND IRON WIRE-CLOTH.

CYLINDER MOLDS.

Designing, Monograms and Lettering for Water-Marks promptly and neatly executed.

CHAS. H. BESLY & CO., No. 175 LAKE ST., CHICAGO, ILL., Gen'l Western Agents.

C. K. WILLIAMS & CO., EASTON, PA.,

— PIONEERS IN THE MINING AND MANUFACTURING OF —

Mineral Pulp and Patent Talcose Clays

FREE OF MOISTURE.

PUT UP IN PACKAGES TO SUIT THE CONVENIENCE OF PAPER MAKERS.

TRADE-MARK.

ESPECIALLY ADAPTED FOR PAPER-MAKERS' USE.

T. P. SHERBORNE, Jr. J. B. WILSON.

STAR CLAY COMPANY

MINERS AND MANUFACTURERS OF

White China Clay,

TRADE-MARK.

OFFICE AND WORKS:

Mertztown, Berks County, PENNSYLVANIA.

ESPECIALLY ADAPTED TO PAPER MAKERS' USE.

PATENT FLEXIBLE RIVETED

MONARCH RUBBER BELTING

TRADE MARK.

Warranted Specially for Use in

PAPER MILLS, or wherever an extra strong and perfectly reliable Belt is required.

— MANUFACTURED ONLY BY —

THE GUTTA PERCHA AND RUBBER MFG. CO.,

New York, Chicago, San Francisco, Toronto, Portland, Oreg.

DECKEL STRAPS, RUBBER-COVERED ROLLS, HOSE, PACKING, AND ALL OTHER KINDS OF MECHANICAL RUBBER GOODS. Ajax Brand Rubber-Lined Cotton Fire-Hose for Fire Protection in Mills, Factories, &c., a Specialty. CHEAP, DURABLE, RELIABLE.

LOCKWOOD PRESS, 126 and 128 Duane Street, cor. Church, New York.